Final Report of the States/British Columbia Oil Spill Task Force

Province of British Columbia
State of Washington
State of Oregon
State of Alaska
State of California

October 1990

STATES/BRITISH COLUMBIA OIL SPILL TASK FORCE

91-00495/

October 16, 1990

Premier Vander Zalm of British Columbia
Governor Gardner of Washington
Governor Goldschmidt of Oregon
Governor Deukmejian of California
Governor Cowper of Alaska

We are proud to announce the completion of the Final Report of the States/British Columbia Oil Spill Task Force. This report represents the success shared by Alaska, Washington, Oregon, California, and British Columbia in jointly studying, sharing information, and developing recommendations on reducing the threat of oil spills on the West Coast. The States/British Columbia Oil Spill Task Force, formed in 1989 in response to the Nestucca and Exxon Valdez spills, has achieved consensus of 5 distinct jurisdictions sharing similar oil spill issues. Many Task Force Recommendations are already in place such as conducting joint drills, sharing information among states, coordination of response efforts, and preparing oil spill prevention legislation.

The recommendations included in the report are aimed primarily at state and federal agencies and the oil transportation industry. While enveloping a large scope of oil transportation, safety, and cleanup issues, the recommendations have been distilled into an integrated list of measures which, when implemented, will greatly reduce the chances of large oil spills and vastly improve our ability to respond to spills which do occur. The recommendations build upon the major finding of the Task Force: that while spill response is a necessary defense, spill prevention is the key.

Joint recommendations have been generalized to accommodate differences among the states and province. Each Task Force Member has offered recommendations specific to the state or province. To ensure that this report is maintained as a living document, the Task Force Members have committed to implementation of all Task Force Recommendations within their specific jurisdiction.

We thank you again for your foresight and leadership in creating the Task Force. Our efforts will serve as a model for other states and can help ensure our citizens that the Task Force has also pledged to continue their mission of coordination and review of oil spill prevention and response efforts. We will join forces to assist each other during a major spill and plan to meet annually to share information and conduct joint drills.

Christine Gregoire

Christine Gregoire, Director
Washington Department of Ecology

Richard Dalen, Deputy Minister
British Columbia Ministry of Environment

Dennis Kelso by [illegible]

Dennis Kelso, Commissioner
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STATES/BC TASK FORCE ON OIL SPILLS
Final Report

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I. Executive Summary

A. OVERVIEW

Following the 231,000 gallon (873 m^3) Nestucca oil spill off the coast of Washington in December, 1988, British Columbia Premier William Vander Zalm and Governor Booth Gardner of Washington established the British Columbia/Washington Task Force on Oil Spills. The day after the first Task Force meeting, the Exxon Valdez struck Bligh Reef in Prince William Sound, and the Task Force membership soon expanded to include Alaska, Oregon, and California. (Maps 1-6 illustrate petroleum transportation flows and facilities on the West Coast and in each individual jurisdiction).

The mandate of the Task Force was to a) investigate ways and means of preventing oil spills; b) to review oil spill response procedures; c) document and assess the mechanisms for handling compensation claims; and d) to develop a coordinated contingency plan for preventing and responding to oil spills in the future. This goal was to culminate in the adoption of a comprehensive set of recommendations which, if implemented, would minimize (to the extent practicable) the probability of major and catastrophic spills and help assure an effective response to such incidents. The Task Force used periodic meetings, subcommittee investigations, training forums, and other tools to accomplish this mandate.

B. MAJOR FINDINGS

Four Task Force subcommittees produced a detailed set of findings, many of which underlie joint and individual recommendations. These findings can be summarized by the following points:

1. Recent spills from the Nestucca, Arco Anchorage, Exxon Valdez, and American Trader have revealed significant problems in oil transportation management, including:

    a. Inadequate personnel training and qualifications
    b. Shortcomings in vessel design and integrity
    c. Insufficient traffic management
    d. Gaps in regulatory oversight
    e. Incomplete cost recovery by states/provinces

2. Despite research in spill cleanup technology, it is unlikely that a large fraction of oil can be recovered from a catastrophic spill.

3. Since response efforts can not effectively reduce the impact of large oil spills, prevention of spills must be the prime strategy in developing solutions to this issue.

4. Readiness and response to smaller size spills of oil or refined petroleum products must still be emphasized, since much of the West Coast traffic is by barge and freighters carrying fuel.

5. Comprehensive oil spill prevention demands participation by industry, citizens, environmental organizations, and all governmental jurisdictions.

6. The States/B.C. Task Force on Oil Spills should continue to promote coordination of West Coast oil spill prevention and response efforts.

C. JOINT RECOMMENDATIONS

The following recommendations have the full support of all Task Force members. Individual recommendations by each Task Force member are presented in the body of the report, beginning on page 51. Recommendations have been subdivided by the technical nature of the issue to assist the reviewer in analyzing recommendations with similar characteristics.

The **recommendations are not in priority order**; priorities are detailed in section IV. The recommendations vary as to the governmental body that has authority to make the suggested changes, and will be forwarded to the appropriate "authorizing agent" through mechanisms identified in an implementation strategy (page 92).

The main objective of this Task Force, as reflected in the following recommendations, is to continue to work towards coordinated prevention and response to oil spills for the Pacific coast. Two aspects of this effort are particularly important: mutual assistance among the members for catastrophic spills, and interjurisdictional protocols for transboundary spills. To achieve these objectives, the Task Force will continue to work together to implement similar response procedures to ensure consistency among the separate jurisdictions. To minimize the need for any response, recommendations to prevent spills occurring along the coast have been developed and given high priority.

Vessel Traffic Reduction

RECOMMENDATION 1: Petroleum Conservation

Implement programs designed to reduce petroleum consumption, such as conservation measures (including appliance and automobile efficiency standards, recycling, and effective mass transit), alternative energy source research, and economic incentives.

RECOMMENDATION 2: Alternative Oil Transportation

Review proposals for alternative transportation modes which would reduce petroleum transportation by tanker in high risk and environmentally sensitive areas. In reviewing any proposals, Task Force members are committed to insuring compliance with all applicable state/provincial/federal laws, including their processes to involve the public.

Vessel Traffic Management

RECOMMENDATION 3: Tug Escorts - Single Propulsion

Require tug escorts for all single boiler or single engine, and single screw tank vessels carrying oil or other petroleum products in waterways designated as high risk by an individual state or province.

RECOMMENDATION 4: Tug Escorts - Tonnage Requirements

Review and, if appropriate, reduce dead weight tonnage specifications for tug escort requirements.

RECOMMENDATION 5: Vessel Traffic Service Systems

Upgrade vessel traffic service systems by replacing outdated equipment, eliminating gaps in coverage, increasing operator training and assignment length, and establishing mandatory participation in vessel traffic service systems in high-risk or congested areas.

RECOMMENDATION 6: Near Miss Reporting System

Establish, on a trial basis with a subsequent assessment of usefulness, a near miss reporting system which links directly with vessel inspection information, vessel traffic, and vessel casualty database systems.

RECOMMENDATION 7: Tow Cables

Develop and implement a mandatory set of guidelines for tugs on tow cable size and material specifications, cable maintenance practices, cable handling equipment design, and barge recovery plan preparation.

RECOMMENDATION 8: Vessel Safety Measures

Establish regional safety measures, including speed limits, based on escort vehicle or other limitations, for all laden tank vessels in inland waters and their critical approaches.

RECOMMENDATION 9: Tow Systems

Require towing systems and plans on all tankers carrying oil and other petroleum products.

Vessel Design

RECOMMENDATION 10: Double Hulls

Require double hulls for all new tank vessels designed to carry oil or other petroleum products as cargo.

RECOMMENDATION 11: Onboard Navigation Improvements

Require all tankers carrying oil or other petroleum products in coastal and inland waterways to possess and operate an onboard navigation system, such as an Electronic Chart Display Information System (ECDIS).

Personnel

RECOMMENDATION 12: Petroleum Facility Worker Training

Require state/province certification of training programs for managers, workers, and safety officers at terminals which handle oil or other petroleum products. Program certification requirements should include spill prevention and response training.

RECOMMENDATION 13: Mariner Qualifications

Require more stringent mariner qualifications, including spill prevention and response training, simulator training, vessel class and size restrictions on deck officer certification, and alcohol and drug testing.

RECOMMENDATION 14: Tug Crew Training

Mandate oil spill response training for all tug crews involved in tank vessel operations.

RECOMMENDATION 15: Crew Requirements

Require two licensed officers (including pilot where appropriate) to be present on the bridge of all tankers carrying oil or other petroleum products while in inland waterways. Require adequate crew levels, sufficient to meet normal and emergency operation needs, for tank vessels carrying oil or other petroleum products.

RECOMMENDATION 16: Dedicated Tug Crews

Assign dedicated tug crews to specific classes of tugs and tank barges carrying oil or other petroleum products to assure familiarity with tug and tank barge operating characteristics.

Enforcement, Penalties, and Liability

RECOMMENDATION 17: Strong Sanctions

Legislate strong levels of civil and criminal sanctions for noncompliance with oil spill regulations.

RECOMMENDATION 18: Proof of Financial Responsibility

Raise state/Canadian federal proof of financial responsibility requirements to ensure spillers can finance oil spill related cleanup and damage costs.

RECOMMENDATION 19: Natural Resource Valuation

Develop and require use of methods of natural resource valuation which fully incorporate non-market and market values in assessment of damages resulting from spills.

RECOMMENDATION 20: Cost Recovery

Develop responsible party contracts to aid in the recovery of all natural resource damage and cleanup costs.

RECOMMENDATION 21: Liability Limits

Remove any ambiguity in federal law and guarantee a state's right to fully exercise its own liability standard. Increase the maximum limit of liability for oil pollution damage under Canadian law.

RECOMMENDATION 22: Coast Guard Enforcement

Increase the Coast Guard's ability to conduct routine on-water surveillance patrols by increasing funding to U. S. Marine Safety Offices and Canadian Coast Guard Regional Offices.

RECOMMENDATION 23: Enforcement Staff

Establish adequate environmental resource agency staffing level devoted to enforce compliance with spill planning requirements, and aggressively pursue legal action against violators.

Regulatory Oversight

RECOMMENDATION 24: Prevention Plans

Require all facilities (and tank vessels larger than 10,000 dwt) which handle oil or other petroleum products to develop and implement spill prevention plans, which would at a minimum include risk-reducing transfer methods and personnel training specifications.

RECOMMENDATION 25: Response Plans

Require all facilities (and tank vessels larger than 10,000 dwt) which handle oil or other petroleum products to develop and implement spill response plans, which would at a minimum include response time, equipment, and staff support specifications.

RECOMMENDATION 26: Local Participation

Each state/province shall recognize and utilize local citizen expertise and knowledge in spill prevention and response efforts. This may include a volunteer training and coordination plan to enhance preparedness.

RECOMMENDATION 27: Clean Up Requirements

Ensure that all state, provincial, and federal agencies act in full cooperation to require the spiller or other responsible party to meet all applicable state, provincial, and federal performance requirements.

RECOMMENDATION 28: Vessel Inspections

Require periodic (but not less than every two years) structural and mechanical integrity inspections of vessel equipment and hull structures on all tank vessels carrying oil or other petroleum products. Develop a priority inspection system for more frequent inspections of particular tanker features essential to safety, and for certain tankers, equipment, and companies with a history of stress fracture incidents and other safety problems.

Education

RECOMMENDATION 29: Prevention Education

Develop a joint spill prevention education strategy for industry and the public, including a program aimed at preventing small chronic oil spills by operators of fishing vessels, ferries, ports, cruise ships and marinas.

Transfer Operations

RECOMMENDATION 30: Transfer Operations Review

Review the adequacy of and make appropriate improvements in equipment, operating procedures, and the appropriateness of existing West Coast locations used for transfer of oil and other petroleum products (with particular emphasis on non-dockside locations).

Spill Response Enhancement

RECOMMENDATION 31: Response Training

Develop, in cooperation with the Coast Guards, industry, and local communities, local programs to provide spill response training to fishing boat operators, ports and harbor districts, marinas, and local communities.

RECOMMENDATION 32: Wildlife Rescue Training and Equipment

Develop and oversee joint programs which provide wildlife rescue volunteer training. Work with industry and others to acquire wildlife rescue equipment, including mobile equipment.

RECOMMENDATION 33: Onboard Response Equipment

Require all tank vessels carrying oil or petroleum products to have onboard response equipment for commencement of spill response efforts as soon as practicable, in amounts and types appropriate to the vessel's class and size.

RECOMMENDATION 34: Response Drills

Conduct a major spill response drill in each of the Western coastal states/provinces at least annually, with joint Coast Guard cooperation when the drill area crosses international boundaries. The drills should emphasize interjurisdictional simulations and all Task Force members should be invited to participate in the other member's drills.

RECOMMENDATION 35: Transfer Containment

Require placement of booms and other appropriate equipment, such as in-water oil sensors, around tank vessels during transfers of oil or other petroleum products in areas designated by individual states/province.

RECOMMENDATION 36: Contingency Plans

Revise state/provincial contingency plans to include the Emergency Response Subcommittee's Mutual Aid Plan, including continual updates of the "call down" lists.

RECOMMENDATION 37: Public Involvement

Ensure that all appropriate governmental agencies, industry, and interested citizens have the opportunity to become involved in development of major spill response policies and plans.

RECOMMENDATION 38: Mutual Aid

In the event of a major spill affecting the waters and coastline of a Task Force member, other Task Force members will cooperate to the fullest extent possible to provide back-up equipment and personnel to respond to the emergency.

RECOMMENDATION 39: Incident Command System (ICS)

The Task Force members should adopt a form of an Incident Command System (ICS) to enhance their ability to manage responses to major spills of oil and other petroleum products.

Research

RECOMMENDATION 40: Research Coordination

Encourage, fund where feasible, and coordinate oil spill research, with emphasis on west coast issues, through university systems and other means, and develop a framework for information sharing and combined funding projects.

Structure and Process of the Task Force

RECOMMENDATION 41: Annual Meeting

Meet annually, with responsibility for the meeting location rotated uniformly among the Task Force members; meetings will include reports by each member on progress in implementing recommendations. Each Task Force member will independently ensure the involvement of interested parties and the public in their respective jurisdiction. Task Force members will review and where appropriate, modify recommendations during annual meetings.

Multi-state/province compact

RECOMMENDATION 42: Interstate Compact

Work cooperatively with the Western Legislative Conference in their evaluation of the advantages and disadvantages of developing an interstate compact to make binding agreements concerning spill prevention and cleanup measures on the West Coast.

Studies and Other Recommendations

RECOMMENDATION 43: Petroleum Industry Response Cooperatives

Conduct a review of Marine Spill Response Corp's (MSRC), Burrard Clean's, and other spill clean-up cooperatives' proposals and schedules for west coast spill response centers.

RECOMMENDATION 44: Information Sharing

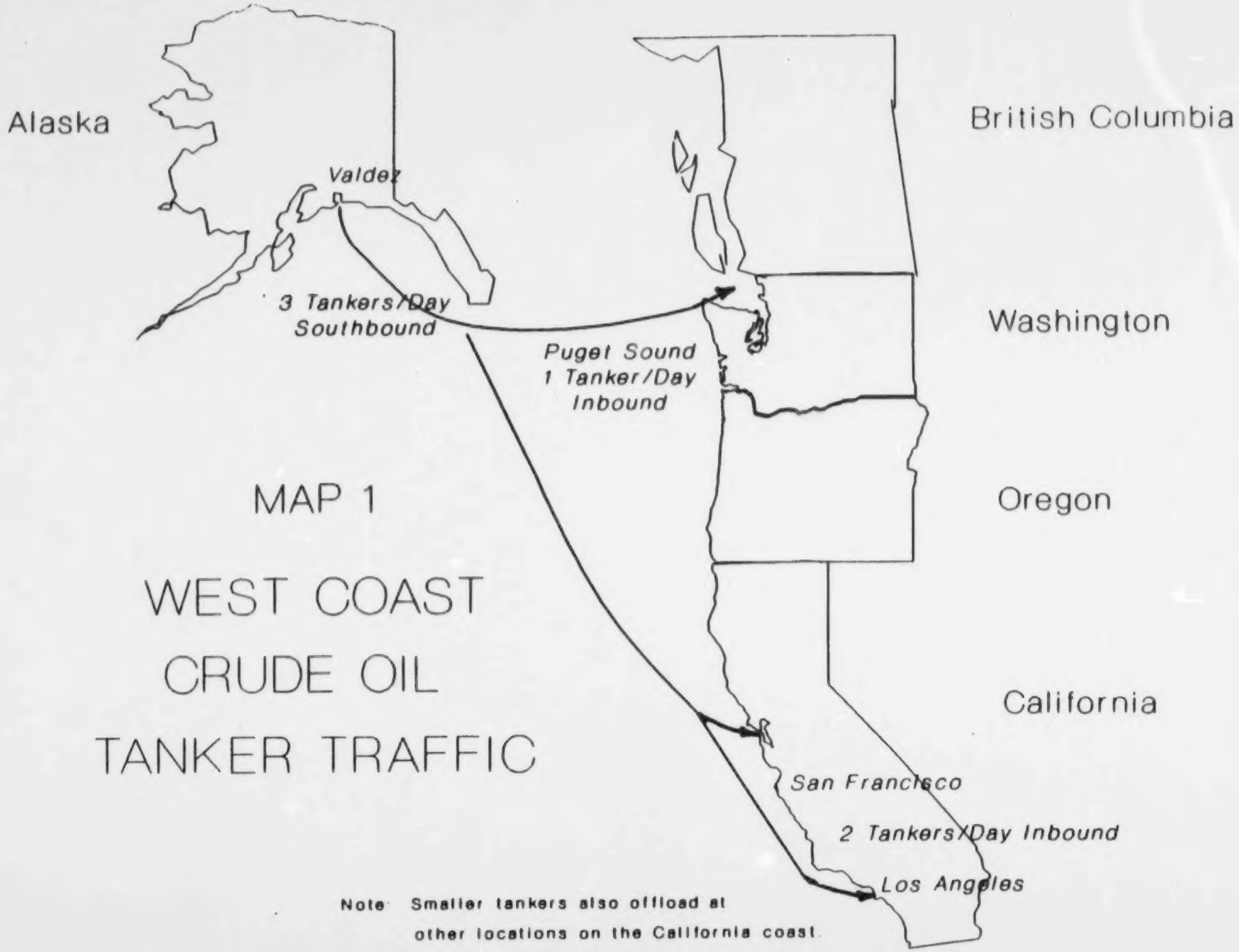
Share reports and other information regarding oil spill prevention and response among Task Force members (e.g. information on spill response worker training and liability issues). Following major spill events in Task Force jurisdictions, the Task Force members will participate in a debrief and take appropriate action, including changes to recommendations. These activities should not jeopardize litigation efforts by Task Force members.

RECOMMENDATION 45: Coordination of Studies

In the event of a major trans-boundary spill affecting the waters and coastline of two or more Task Force members, those affected members will coordinate their subsequent studies and activities designed to identify damage, restore the natural environment, and pursue damage claims.

RECOMMENDATION 46: Spill Equipment Updates

Review annually, and update if necessary, response equipment lists and mutual aid provisions for response to catastrophic spills. Continue to work towards consistency among the members in individual contingency plans and response criteria.


Alaska
Valdez
British Columbia
Washington
Oregon
California
3 Tankers/Day
Southbound
Puget Sound
1 Tanker/Day
Inbound
San Francisco
2 Tankers/Day Inbound
Los Angeles

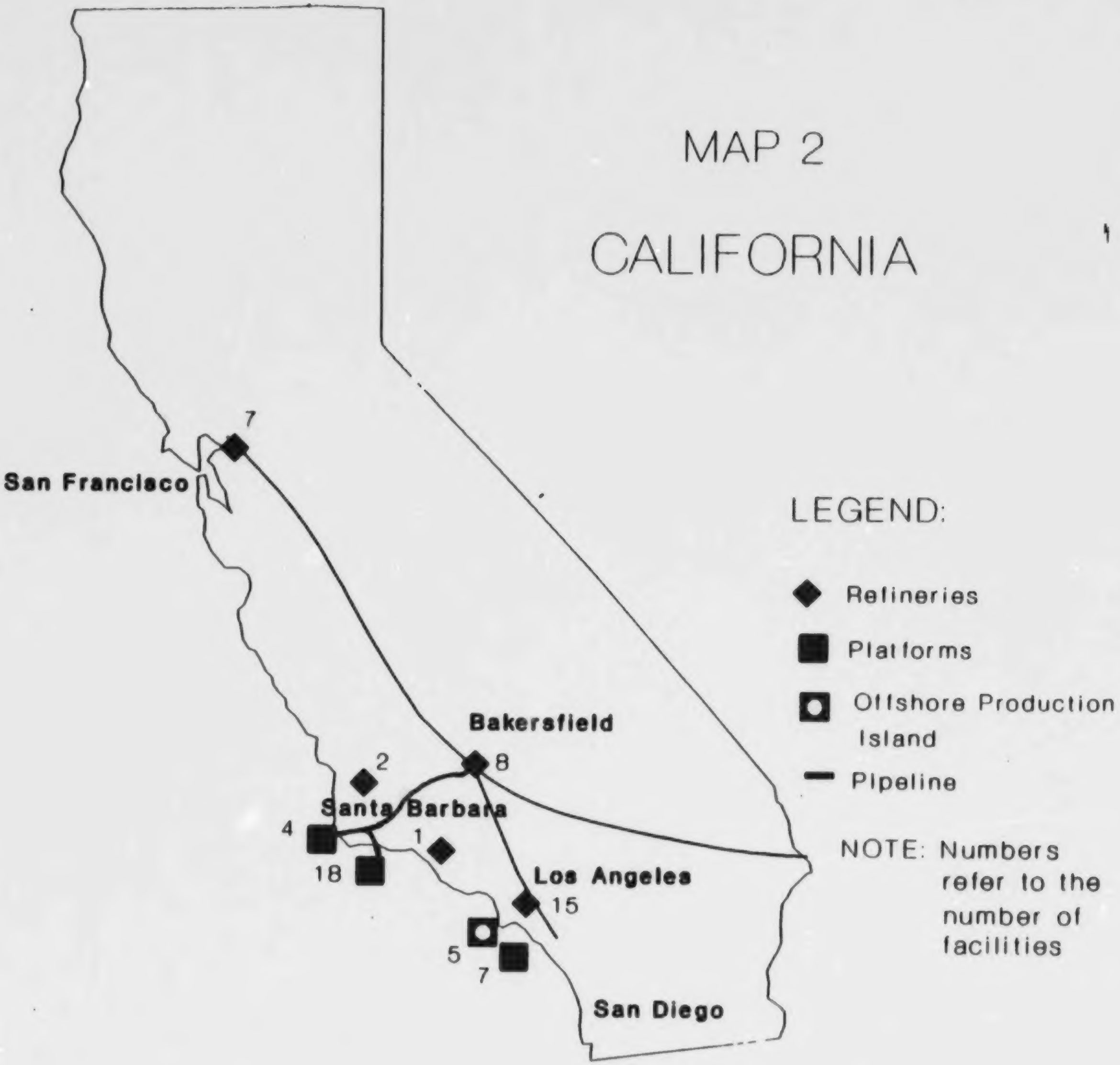
MAP 1

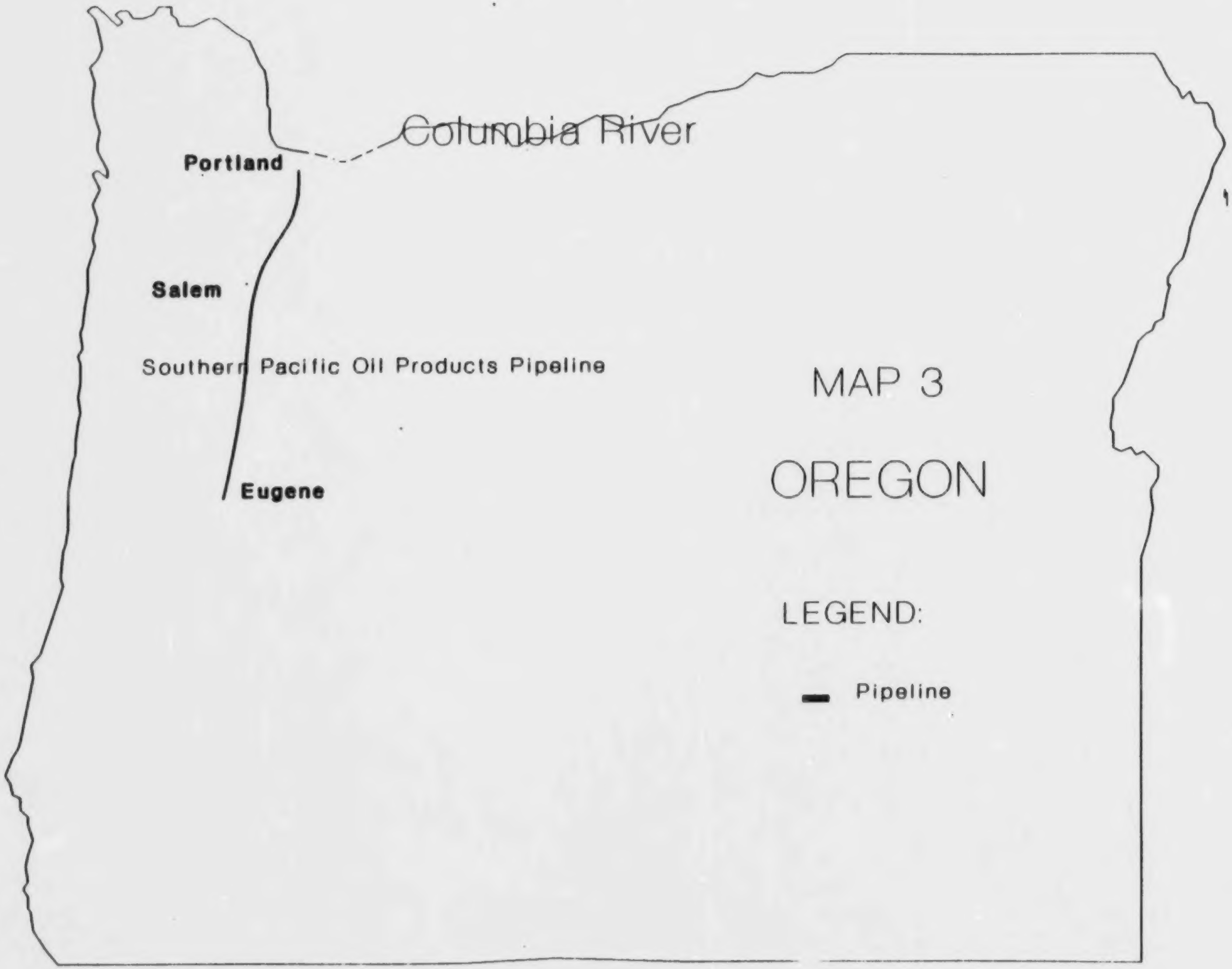
WEST COAST CRUDE OIL TANKER TRAFFIC

Note: Smaller tankers also offload at other locations on the California coast.

MAP 2

CALIFORNIA

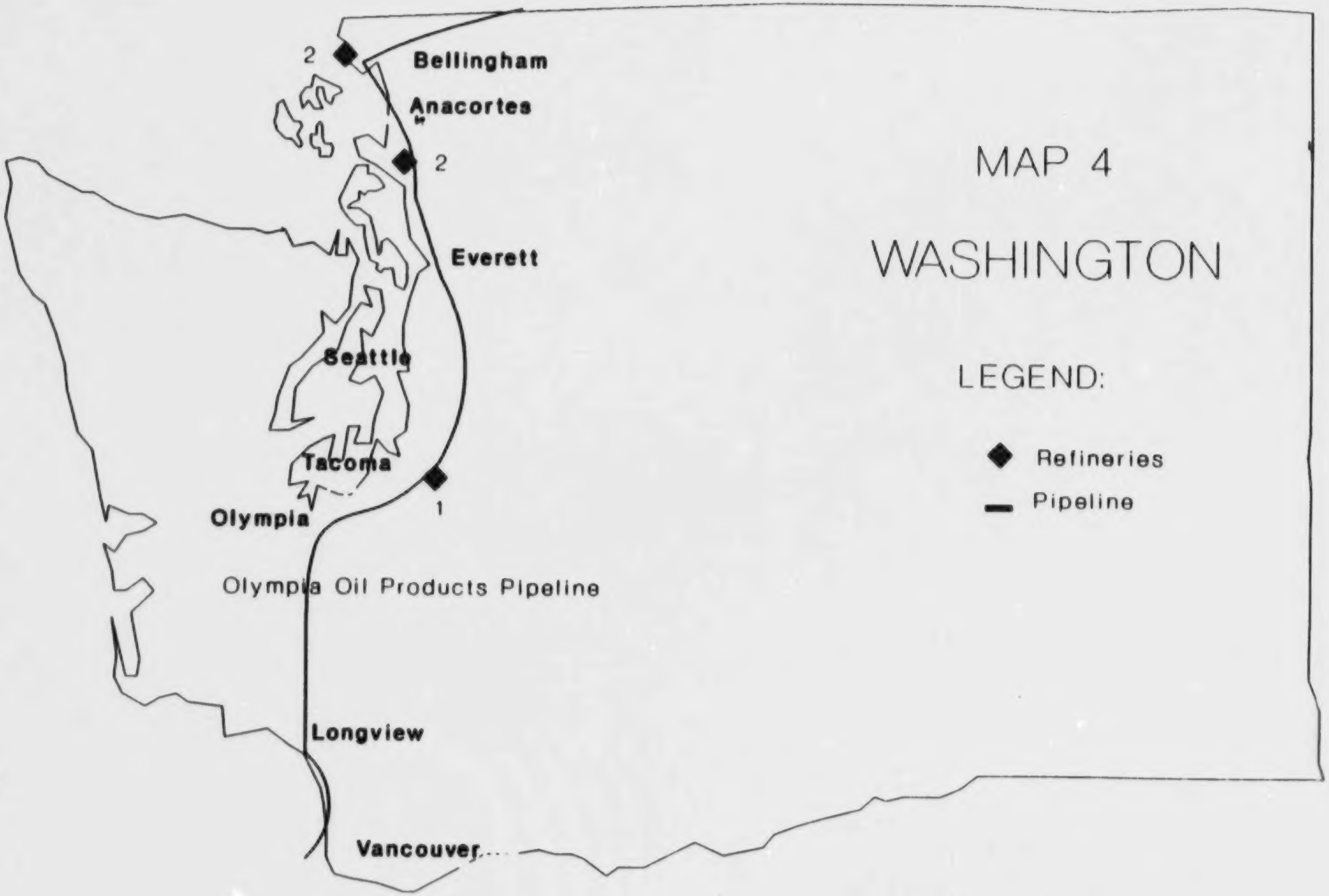

San Francisco
7
Bakersfield
8
2
Santa Barbara
4
18
1
Los Angeles
15
5
7
San Diego
LEGEND:
◆ Refineries
■ Platforms
▣ Offshore Production Island
— Pipeline
NOTE: Numbers refer to the number of facilities



MAP 3

OREGON

Columbia River
Portland
Salem
Southern Pacific Oil Products Pipeline
Eugene
LEGEND:
Pipeline



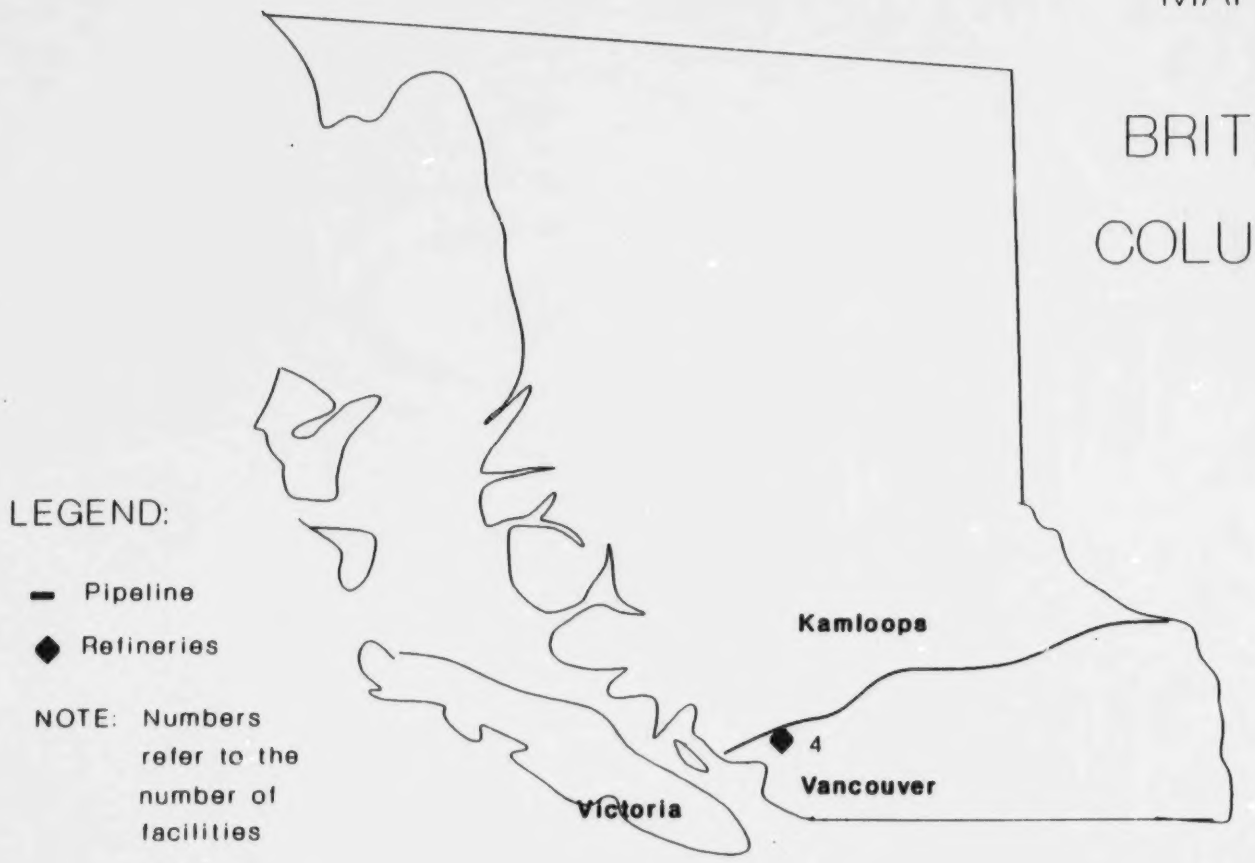
MAP 4

WASHINGTON

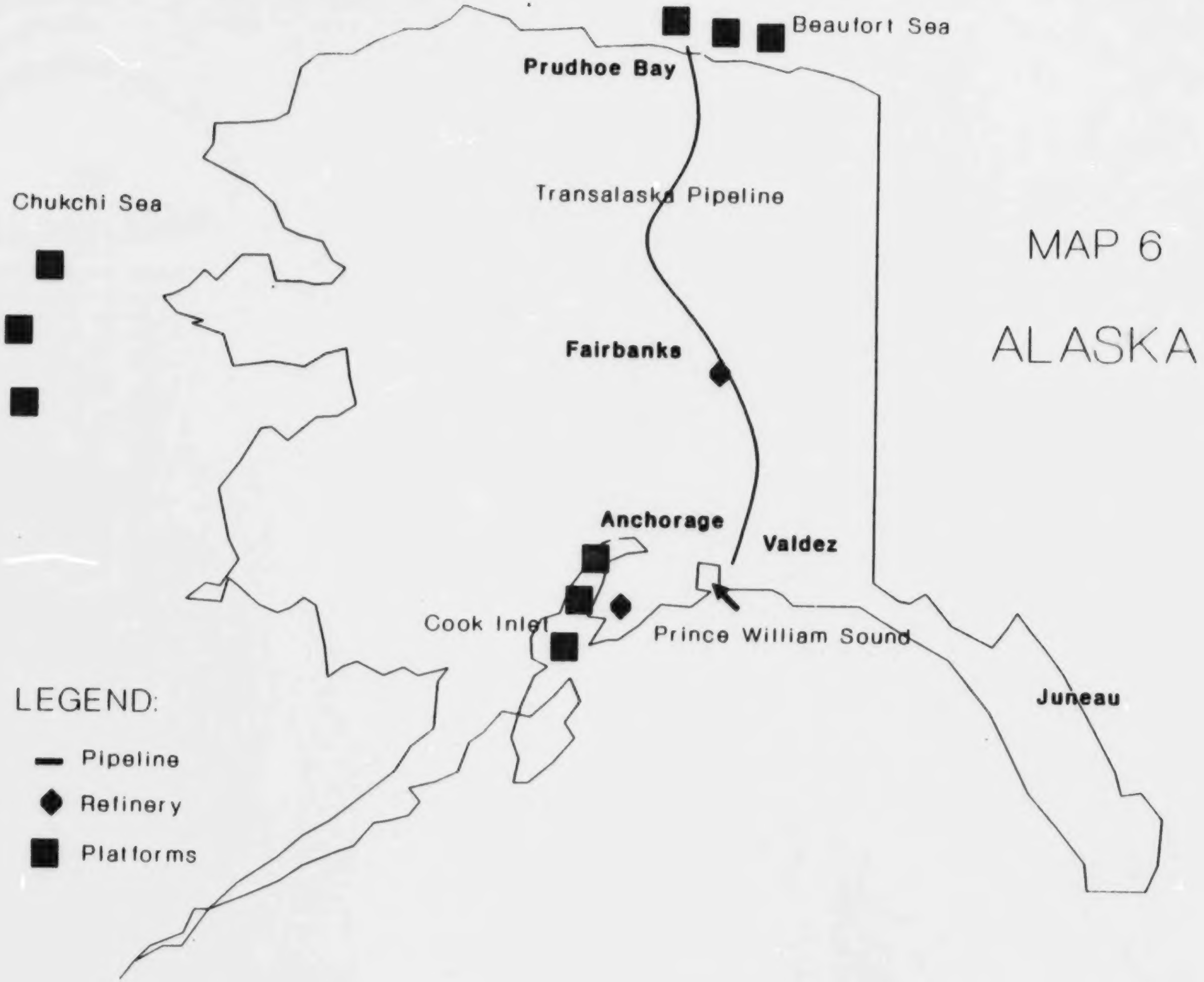
LEGEND:
◆ Refineries
▬ Pipeline
2
Bellingham
Anacortes
2
Everett
Seattle
Tacoma
1
Olympia
Olympia Oil Products Pipeline
Longview
Vancouver....

MAP 5

BRITISH COLUMBIA


LEGEND:
▬ Pipeline
◆ Refineries
NOTE: Numbers refer to the number of facilities
Kamloops
4
Vancouver
Victoria

MAP 6
ALASKA


Beaufort Sea
Prudhoe Bay
Chukchi Sea
Transalaska Pipeline
Fairbanks
Anchorage
Valdez
Cook Inlet
Prince William Sound
Juneau
LEGEND:
Pipeline
Refinery
Platforms

II. Background

A. HISTORY AND MISSION OF THE STATES/BC OIL SPILL TASK FORCE

1. The Nestucca Spill

On the night of December 22, 1988, while attempting to reattach a broken tow line during rough seas, the tug Ocean Service collided with the tanker barge Nestucca off Gray's Harbor, Washington. The resulting puncture in the barge's hull leaked 231,000 gallons (873 m^3) of fuel oil into Washington's coastal waters.

More than 110 miles (176 km) of Washington's scenic coastline were contaminated by the fuel oil, which formed a slick covering some 800 square miles (2,080 km^2). As dead birds and patches of oil began to appear on beaches in British Columbia, the Nestucca incident clearly repeated an obvious but necessary message: oil spills do not respect interstate or international political boundaries. Thousands of oiled seabirds were collected, and many died despite rescue efforts.

2. Formation of the Washington-B.C. Task Force

This Nestucca spill motivated action in Washington and British Columbia. On January 20, 1989 Governor Booth Gardner and Premier Vander Zalm announced the formation of a joint oil spill Task Force, to be co-chaired by Christine Gregoire, Director of Washington's Department of Ecology, and Richard Dalon, Deputy Minister of the B.C. Ministry of Environment. During the first Task Force meeting, held March 23 in Victoria, the co-chairs established a task force process and subcommittee organization. On the following day, the Exxon Valdez transformed perspectives on oil spill management.

3. The Exxon Valdez Runs Aground

On March 24, with eight of 11 cargo tanks torn open by the rocks of Bligh Reef, the Exxon Valdez released nearly 11 million gallons (41,580 m^3) of crude oil into the rich waters of Prince William Sound, Alaska. Oil reached over a thousand miles of Alaska coastline, causing extensive damage to beaches, seabirds, marine mammals, and other natural resources. Many Alaskan coastal communities faced economic and social hardships as the spill's devastation spread. For example, virtually the entire commercial salmon season of Kodiak Island communities was lost. The Exxon Valdez incident not only demonstrated that catastrophic spills were possible, but that our ability to prevent, respond to, and clean up such disasters was far from adequate.

4. Alaska, Oregon, and California Join the Task Force

The Prince William Sound spill prompted interest among other west coast states in working with Washington and British Columbia on mutual oil spill prevention and response issues. On July 3, 1989 Governor Neil Goldschmidt on behalf of the state of Oregon officially joined the Task Force, followed by Alaska Governor Steve Cowper on August 3. On September 21, California completed the current membership of the States/British Columbia Task Force.

The Task Force was given the mandate to investigate ways and means of preventing oil spills; to review oil spill response capability; document and assess the mechanisms for handling compensation claims; and to develop a coordinated contingency plan for preventing and responding to oil spills in the future.

5. Memorandum of Agreement

Task Force activities were initiated by an "Oil Spill Memorandum of Co-operation," initially signed on June 16 by Washington and British Columbia (refer to Attachment I). The memorandum dealt with future transboundary environment and wildlife issues, and stressed the importance of:

- enhancing the environment and protecting it from oil spills;
- protecting transboundary fish and wildlife from damage caused by spills and other discharges of oil;
- maintaining and improving a coordinated response to oil spills; and
- pursuing the above in cooperation with the federal governments of Canada and the United States.

Under the terms of the memorandum, each signatory agreed to appoint an appropriate government representative to maintain the memorandum. Written notification of appointments was sent to all signatories to ensure effective coordination. The memorandum is intended to be perpetual, although each party has the option of terminating its involvement in the agreement.

The current appointments are, in addition to co-chairs Christine Gregoire and Richard Dalon:

Fred Hansen - Director, Oregon Department of Environmental Quality;

Dennis Kelso - Commissioner, Alaska Department of Environmental Conservation and;

Michael Kahoe, Assistant Secretary, California Environmental Affairs Agency.

Appointed representatives are to meet annually to review and plan cooperation.

The memorandum also identified the following issues to be addressed by the Task Force:

- creation of a joint emergency response plan;
- evaluation of capabilities and technologies for spill prevention, response, and containment;
- review of tanker safety, routing, and operating requirements;
- inventory of equipment, material, personnel, and other resources available to either the province or the states for use in oil spill control and clean-up operations; and
- joint spill response drills and training.

Investigation of these issues was assigned to four subcommittees established under the Task Force:

1. **Prevention Alternatives Subcommittee**, directed to evaluate ways and means of improving oil spill prevention through changes in operating procedures, regulations, and laws.

   Chair: John Bones, British Columbia Ministry of Environment.

2. **Emergency Response Subcommittee**, directed to identify existing response procedures and policies and how they could be modified to complement each other, and to recommend an agreement to ensure a quick and effective coordinated response to future spills.

   Chair: Dean Monterey, British Columbia Provincial Emergency Program.

3. **Financial Recovery Subcommittee**, directed to examine and share existing information on procedures, laws, and administrative mechanisms available to recover costs and damages from responsible parties.

   Chair: Ann Essko, Washington Attorney General's Office.

4. **Technology Sharing Subcommittee**, directed to identify and share existing technologies used by different agencies, and state-of-the-art equipment available for spill response.

   Chair: Jon Neel, Washington Department of Ecology.

6. Budget

No formal budget was allocated to the Task Force. Instead, members shared costs associated with meetings and reports.

7. Meetings

The Task Force held the following five joint meetings prior to completion of this final report (subcommittees met in part or in full as needed):

March 23, 1989: Victoria, British Columbia.
- Scope of work, Subcommittee creation, Nestucca spill update.

May 9, 1989: Seattle, Washington.
- Exxon Valdez spill, Clean Sound Cooperative demonstration.

September 21, 1989: Portland, Oregon.
- Subcommittee progress reports, Exxon Valdez update.

December 20, 1989: San Francisco, California.
- Subcommittee progress reports, Task Force Interim Report.

July 24-25, 1990: Anchorage, Alaska.
- Prince William Sound overflight, Final recommendations

Meetings will continue on an annual basis.

B. TASK FORCE ACCOMPLISHMENTS

The Task Force realized its mandate through five main channels: preparation of studies and reports, training forums, a joint response drill, review of a number of existing major reports relating to spill prevention and response, and joint spill notification/communication.

1. Studies and reports

In December, 1989, the Task Force released an Interim Report, which described the organization and objectives of the Task Force, reported on the progress of each subcommittee, and summarized individual accomplishments of the member states and province.

Each subcommittee has produced several reports through contracted studies or in-house investigations. Where appropriate, the findings of these products were used to develop recommendations. An annotated bibliography of subcommittee reports is attached; each individual subcommittee report is included as an appendix.

2. Training Forums

The B.C. Environment Youth Corps and Washington Conservation Corps participated in a joint training session on oiled bird rehabilitation techniques in Friday Harbor, Washington, facilitated by the Island Oil Spill Association. The training involved an overview of oil spill response and general methods of bird rescue and cleaning. Subsequent to the session, the Corps members were able to apply their new skills to actual spill response efforts, demonstrating a tangible benefit of the coordination brought about by the Task Force process.

3. Spill Response Drill

On February 28, 1990 the United States Coast Guard coordinated a spill response drill in Puget Sound involving cooperation with industry and local, Washington state, British Columbia, U.S, and Canadian agency representatives. The hypothetical collision involved an oil tanker and barge carrying hazardous materials south of Cherry Point, spilling 6.3 million gallons (23,800 m^3) of crude oil. While no equipment or personnel were actually deployed for this drill, communication networks were exercised through computer, telephone, and video links. Several hundred people attended the drill, which was conducted from a Seattle hotel.

4. Review of Other Studies

Rather than start with the development of new information, the Task Force relied in part on data and findings in existing oil spill reports. Particularly, the Task Force reviewed the extensive recommendations proposed by the Alaska Oil Spill Commission in Spill: the wreck of the Exxon Valdez, and by David Anderson in Report to the Premier on Oil Transportation and Oil Spills. These reports were analyzed and compared, and serve as the source for generalized Task Force recommendations which did not arise from specific subcommittee findings. Particular attention was paid to links between the practicality of past and existing recommendations and whether or not the recommendation would in fact be implemented.

5. Joint Spill Notification/Communication

   a. Exxon Valdez repair: Task Force members were in constant communication during efforts to move the Exxon Valdez to a repair site. This communication resulted in a set of mandatory criteria requisite to transporting the vessel up the Columbia River. Exxon eventually opted to move the tanker to San Diego for repairs.

   b. American Trader spill: A notification system developed through the Emergency Response subcommittee was used by responders to the spill off Huntington Beach, California. Visits to the spill scene by Alaskan officials were also facilitated through past Task Force interactions.

C. PUBLIC INPUT

Each member state or province held the responsibility for collecting public comment for subcommittee meetings or other Task Force-related activities. Public input has been received through letters and proposals from individuals, environmental interest groups, industry representatives, and others. Many letters have focused on the need for prevention of marine spills, and stressed the importance of an improved response capability. Other letters have provided suggestions for more effective response, and included offers to provide cleanup services, as well as proposals for new technology and response systems.

The 1989 Anderson Report to the Premier on Oil Transportation and Oil Spills reflected the result of four months of public hearings in the coastal communities of British Columbia during the summer of 1989. The diverse proposals and recommendations from the public to Anderson formed the basis for many of his 184 recommendations on oil spill prevention, protection and response capability.

On April 24, 1990, The Department of Ecology held a public meeting in Seattle to discuss the progress of the Task Force and receive public input. Direct public comment on the Task Force draft report was solicited and received during a two-week public comment period beginning on July 2, 1990, and a three-week comment period beginning on September 10, 1990. Additionally, four Task Force meetings were open to the public and comments were received during the meetings.

The recommendations and text of this report was significantly modified in response to the numerous and excellent comments received by the Task Force.

III. Subcommittee Findings

Reports generated by each of the four subcommittees are available as appendices. The following sections summarize the findings of studies and reports developed by each subcommittee.

A. PREVENTION ALTERNATIVES SUBCOMMITTEE

1. Introduction

The experience of Task Force members in responding to marine oil spills has confirmed that prevention constitutes the most effective means of avoiding the detrimental social, economic, and environmental impacts of a spill. Prevention measures, however, encompass a wide range of topics which include rates of oil consumption and shipping activity, alternative supplies and supply routes, ship structure and safety practices, crew training, shore-based tracking and control, and both environmental and navigational risk factors. The Prevention Alternatives Subcommittee was therefore charged with the duty of undertaking a number of important and time-consuming technical studies on these general topics as the basis for prevention options to be considered by the Task Force. These studies have been focused on the coastal waters of Georgia Strait, Puget Sound, the Strait of Juan de Fuca and southwest Vancouver Island due to the high volume of marine traffic movements in these areas, their high environmental sensitivity, and concerns raised by the Nestucca spill.

A number of critical studies were conducted. These were: 1) Crude Oil and Petroleum Product Traffic in Southern B.C. and Puget Sound: 2) A Review of Tanker/Barge Safety; 3) Oil Spill Risk Assessment for Southern B.C./Northern Washington Coast, 4) Environmental Risk Evaluation for B.C. and Northern Washington; and 5) Risk Reduction Alternatives for B.C. and Northern Washington.

In addition, a Study Review Panel guided the development of various consultant studies and provided short reports and studies related to vessel traffic safety, common use oil terminals, and other issues to supplement the major studies of the Subcommittee. Similar studies have been done individually by other states. For example, in California the State Interagency Oil Spill Committee under the direction of the Department of Fish and Game commissioned studies to evaluate the state's capabilities to: 1) respond to large oil spills in marine waters; 2) respond to chemical spills in marine waters; 3) tow and salvage marine casualties; and 4) respond to fires from coastal transportation accidents. In addition, Santa Barbara county completed its "Marine Emergency Management Study" which reviews vessel traffic and facility development in the Santa Barbara Channel and the county's ability to respond to emergencies.

British Columbia and Washington completed assignment of subcommittee tasks and chairs before the other states joined the Task Force, and therefore have been responsible for the bulk of the Subcommittee activities and findings and for the focus of its studies.

Subcommittee members, advisors and study review panel members are listed in Attachment III.

2. Summary of Findings

There is a high level of spill risk and consequence costs from existing tank vessel movements on the west coast. This risk is expected to increase unless: (a) improvements are made to tank vessels to reduce both the number and size of oil spills; or (b) petroleum consumption is reduced; or (c) supply alternatives which result in substantial reductions to tanker traffic are put in place.

Potential improvements to tank vessel design and operation with the greatest potential for spill risk reduction are double hulls and advanced navigation systems.

A new common use oil terminal in outer Juan de Fuca Strait could virtually eliminate the risk of a catastrophic spill impacting the highly vulnerable Puget Sound/Strait of Georgia basin and reduce by half this risk for the rest of the British Columbia/Washington coast.

2.1 Existing Marine Oil Supply

a. Crude oil and refined petroleum product movement

There are six basic flow patterns of oil and refined product in the Southern B.C./Northern Washington coastal area (Table 1, page 32). These are: 1) crude oil exported by tanker from Vancouver; 2) crude oil imported to Vancouver, 3) offshore crude imported to Puget Sound refineries; 4) refined products barged from Vancouver to B.C. and other coastal markets; 5) refined products barged and tankered from Puget Sound to Washington and other markets; and 6) refined products imported to Puget Sound refineries.

b. Alberta crude oil movements from Westridge

Crude oil is exported by tanker or barge from the Port of Vancouver via southern Georgia Strait and Juan de Fuca Strait. This crude oil is primarily Alberta heavy crude delivered by Trans Mountain Pipe Line Company, Ltd (TMPL) to its Westridge terminal in Vancouver Harbor. Crude shipments are destined primarily for Pacific Rim Markets. Some light oil export also occurs but this is diminishing due to depletion of Alberta's light oil fields.

c. Crude oil movements into Puget Sound refineries

The majority of crude oil imported by tanker or barge is delivered to Puget Sound refineries owned by ARCO, BP, Shell Oil, Texaco, and U.S. Oil. In 1988, approximately 22.9 million tons (20.26 million tonnes) of crude were delivered to these refineries, primarily from the Alaska North Slope fields. This constitutes 333 tanker trips through Juan de Fuca Strait, as well as 35 barges, half of which carried light crude from Vancouver (Table 1, page 32). A comparison of tanker crude shipments from Vancouver with those into Puget Sound refineries is shown in Table 1 (page 32).

d. Refined petroleum product movements

Refined petroleum product (RPP) traffic dominates the number of shipments in the region (Table 1, page 32). In 1988, over 4000 RPP shipments were recorded. They are primarily shipped by barge in loads under 793,650 gallons (3000 m^3) and consist of bunker and heavy fuel oil, gasoline, diesel, light fuel oil, jet fuel, and small amounts of propane, butane and specialty products. Two thirds of the RPP exported from Vancouver is destined for Vancouver Island and B.C. coastal markets. An illustration of the extent of RPP movements from Vancouver is shown by Table 1. Puget Sound refiners deliver a major proportion of their RPP to the Washington coast by barge and to out-of-state markets by tanker, the latter markets receiving primarily gasoline and distillates.

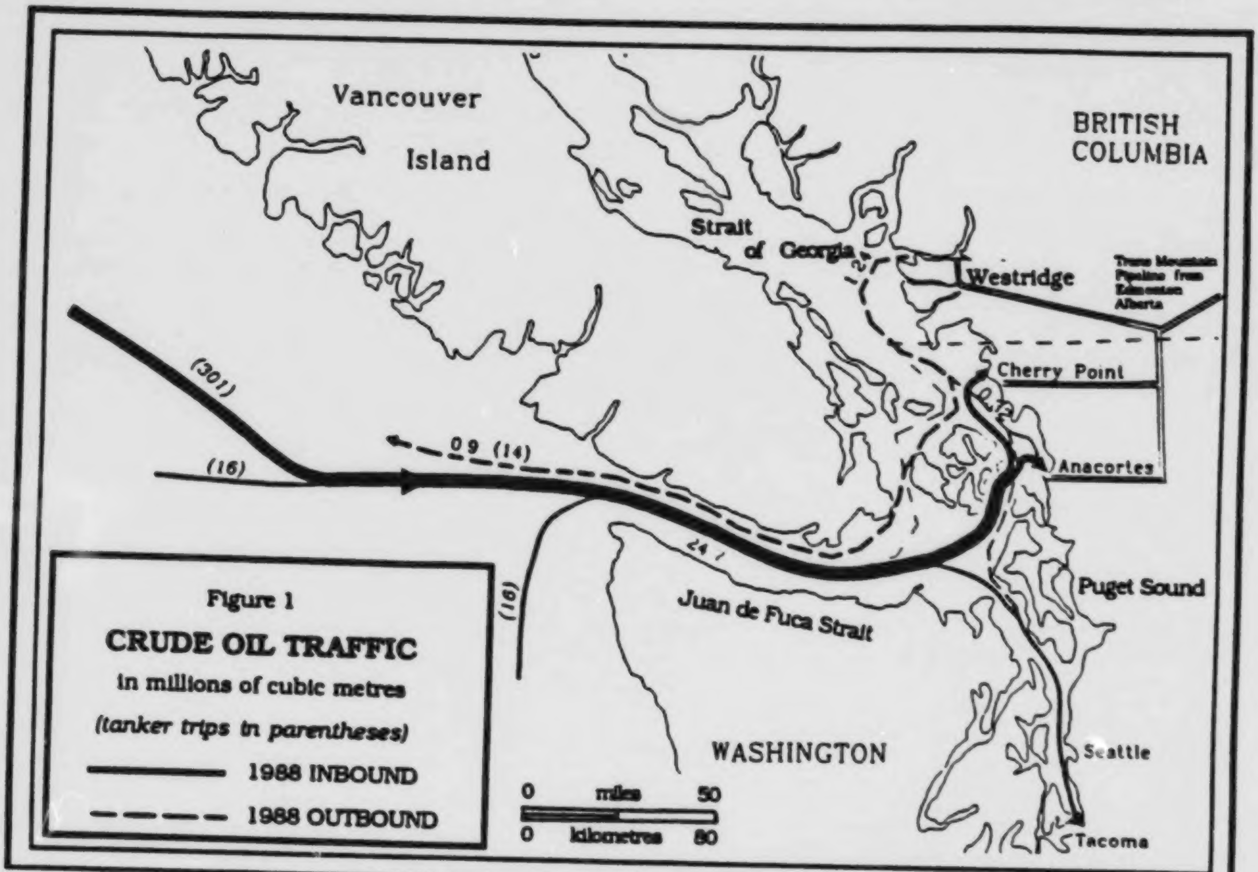


Figure 1

CRUDE OIL TRAFFIC

in millions of cubic metres

(tanker trips in parentheses)

1988 INBOUND
1988 OUTBOUND
Vancouver Island
BRITISH COLUMBIA
Strait of Georgia
Westridge
Trans Mountain Pipeline from Edmonton Alberta
Cherry Point
Anacortes
Puget Sound
Juan de Fuca Strait
WASHINGTON
Seattle
Tacoma
(301)
(16)
0.9 (14)
(16)
24
2
0 miles 50
0 kilometres 80

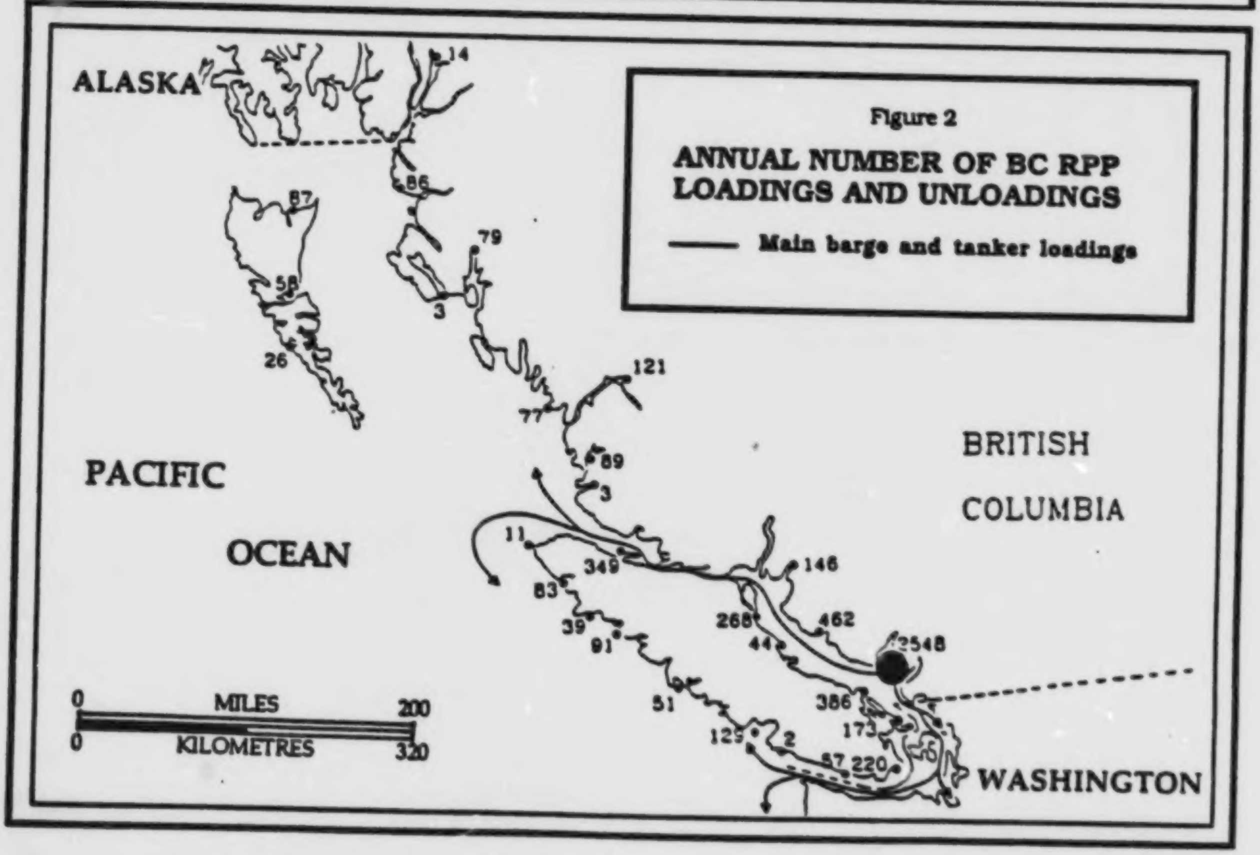


Figure 2

ANNUAL NUMBER OF BC RPP LOADINGS AND UNLOADINGS

Main barge and tanker loadings
ALASKA
PACIFIC OCEAN
BRITISH COLUMBIA
WASHINGTON
14
86
87
79
58
3
26
121
77
89
3
11
349
146
83
39
91
268
462
44
2548
51
386
173
129
2
57
220
0 MILES 200
0 KILOMETRES 320

2.2 Future Marine Oil Supply

a. Increased tanker movements from Westridge, Vancouver

Considerable potential exists for increased tanker traffic in Georgia Strait, Juan de Fuca Strait and Puget Sound. Trans Mountain Pipe Line Company, Ltd is expanding its pipeline and storage capacity to accommodate an expected increase in heavy crude oil exports from Canada. The National Energy Board of Canada in 1989 approved a Stage 1 expansion that will increase TMPL's capacity to transport heavy oil for export from the existing 211.6 million gallons/year (0.8 million cu^3/year) to 582 million gallons/year (2.2 million m^3/year). This translates to an increase in existing tanker traffic from 12-24 per year, up to 48 per year. Approval of TMPL's other pending proposals to increase Alberta crude oil export will depend upon future Alberta production and Pacific Rim markets, but could increase tanker exports to 139 per year in the late 1990's. In addition, Petro-Canada is considering plans to export methyl tributyl ether (MTBE) by tanker to its Port Moody, B.C. facility through Juan de Fuca Strait. This volatile, gasoline-like product could add another 26 tankers per year to outbound traffic.

b. Increased crude oil imports to Puget Sound

Crude oil imports to Puget Sound are expected to increase, partly the result of expanding U.S. markets for RPP, but also the result of the new U.S. Clean Air Act whose stringent regulations will necessitate increased throughput of crude oil by refineries to achieve the current levels of gasoline and other product refining. Growth rates could be as high as 5 percent per year and a possible 50 percent increase in tanker traffic has been cited. RPP tanker and barge shipments from Puget Sound refineries can therefore be expected to increase. Although Alaska crude supplies are expected to diminish, these will be offset by increasing inbound shipments of Asian light crude.

c. No change in refined petroleum product movements

Shipments of RPP by barge from Vancouver can be expected to remain at current levels due to the impact of the Vancouver Island Natural Gas Pipeline and the dependence of B.C. coastal markets on marine transport of fuels. Deliveries of RPP from outside the Region can also be expected to remain at their current levels.

2.3 Environmental Risk Evaluation for Southern B.C./Washington

a. Oil spill movement and distribution

Five oil spill scenarios were run in the study region using a computer model which predicts oil properties, location, and spreading behavior as a function of time. Maps were generated to show the oil trajectories to the point of shoreline impact. The physical consequences resulting from each scenario with no cleanup are shown in Table 2 (page 33). The key scenario findings are: 1) emulsification increases the effective spill volume in terms of shoreline disposal by a factor of 3 or more; 2) the length of heavily oiled shoreline is not directly related to the initial spill volume; 3) there is a high probability of trans-boundary spills (Rosario Strait being the worst case example); 4) initial shoreline impact can be expected within 24 hours, with the majority of the heavy oiling complete within 3 days; and 5) the severity of any given scenario is strongly dependent on the timing of release (relative to the tidal cycle) and subsequent wind directions following the spill. These scenarios represent illustrative examples and do not represent what may actually happen under different circumstances.

b. Probability of trans-boundary spills

The representative scenarios run in the studies demonstrate the potential for significant shoreline impact resulting from a spill migrating across the Canada/United States border. Small changes to wind directions can easily turn a U.S. coastal spill into a major international incident.

c. Low cleanup effectiveness for most spills

An analysis was made of offshore cleanup effectiveness, assuming that two state-of-the-art cleanup systems could be brought on site within 12 hours, with sufficient barge holding capacity (exception is Lord Rock where deployment of one system within 36 hours is assumed possible). The findings (shown in Table 2, page 33) indicate that a summer response will be two to three times more effective than a winter response due to factors of weather and darkness. The analysis also suggests that response time has a marginal effect on overall percent recovery (typically less than a 10 percent increase in recovery volumes with half the response time). The product type has a major effect on the potential offshore recovery effectiveness; and spill size has a major impact on the overall percent recovery. The potential exists to recover up to 40 percent of a 420,000 gallon (1,588 m^3) spill under good conditions while there is low probability of recovering any more than 10 percent of a catastrophic spill over 4.2 million gallons (15,876 m^3).

d. No close correlation between spill volume and impact

There is no close correlation between spill volume and impact. A spill of less than 42,000 gallons (159 m^3), in the wrong place, at the wrong time, can easily have many times the impact of 4.2 million gallons (15,876 m^3) offshore, or impacting a high energy shoreline during a period of low biological activity. Offshore cleanup effectiveness is constrained by a large number of complex factors which can result in overall oil recoveries over a wide range (from less than 1 percent in the worst case to 40 percent or more in the best case). Even the best equipment in the world can be quickly rendered useless (or severely reduced in throughput) by average weather conditions, and oil viscosity.

e. Low oil recovery under favorable conditions

The best available cleanup equipment with highly trained crews able to response on site in less than 12 hours under favorable weather conditions is unlikely to recover more than 30 percent of the total volume spilled from a tanker or barge during transit (significantly higher recovery effectiveness is possible in a contained port spill situations).

f. Complications in recovery of emulsified oil

Alaska North Slope crude, which dominates the crude types transported through the B.C./Washington region, is characterized by a tendency to quickly form highly stable emulsions (following an initial period of rapid spreading) which can survive on the sea surface for weeks. This emulsion formation slows skimming operations and greatly increases the storage and disposal problems. Under average sea conditions, this means that for most crude oil spills in the region, cleanup crews must be prepared to handle up to three times the original volume spilled. This physical phenomenon has far reaching implications for offshore cleanup effectiveness, shoreline oiling, and disposal.

g. Spill impacts most dependent on weather, season, shoreline type

Environmental impact is highly variable between spills. Factors such as weather conditions, time of year, and shoreline type are far more important in determining the extent of environmental damage. The worst case scenario run on computer simulation resulted in hundreds of miles of oiled shoreline leading to projected direct cleanup costs (no damages or compensation) over several seasons of hundreds of millions of dollars. The ultimate cost may well run into the billions of dollars.

h. Recovery rates dependent on exposure, shoreline type

Realistic natural cleaning rates must be taken into account in predicting long-term impact. Estimates of recovery time vary according to the environment. For example, rocky exposed shores (e.g. open ocean) usually recover (to pre-spill appearance) in two to three years, while sheltered estuaries can take ten years or more to recover. Shoreline cleanup must be careful planned to avoid even greater disruption. Removal of oil using high-intensity methods can actually delay recovery.

i. High consequence costs dependent on spill size, location, season

Estimates of consequence costs (cleanup, fisheries, property and tourism, etc.) range from $25 million for a spill under 420,000 gallons (1,588 m^3) to $362 million for a spill over 4.2 million gallons (15,876 m^3) in Juan de Fuca Strait to over $2.5 billion for an equivalent sized spill in Puget Sound or the Strait of Georgia.

These costs are dependent on shoreline length oiled, location and time of year of spill; and do not include subsequent damage claims which could easily exceed direct cleanup costs.

2.4 Supply Alternatives for Marine Oil Traffic Reduction

a. New Terminal in Outer Strait of Juan de Fuca

Given the existing crude oil tanker export traffic from Vancouver Harbor and its potential for increase, heavy oil could be diverted by pipeline to a new terminal outside Vancouver. Use of existing industrial terminal sites in Georgia Strait or Puget Sound would not substantially reduce traffic nor environmental risk in the general area, and would encounter legal and public opposition in the United States. However, an export terminal near the entrance to Juan de Fuca Strait to receive Alberta heavy crude via pipeline could gain acceptance by increasing the share of environmental risk between B.C. and Washington, and by eliminating existing and future tanker traffic in Vancouver and the southern Georgia Strait/northern Puget Sound area.

b. Marine transit tax

A marine transit tax could provide a means of reducing tanker exports from Vancouver. The tax would increase shipping costs to the point at which it might become more economical to redirect Alberta crude to traditional or new North American markets via pipeline. This option would not eliminate the possibility of waterborne oil traffic, but would ensure the economic benefit of the shipments justified the costs and risks involved.

c. Ban on oil tanker shipments

A regulatory ban on tanker shipments is considered inflexible and unrealistic given the lack of immediate supply alternatives. It would prevent shipments, even if the benefits to the shipper and market exceeded the costs and risks involved.

d. Backout of Puget Sound tankers to new terminal

Crude oil imports to Puget Sound by tanker could be diverted or "backed-out" from Puget Sound to the entrance of Juan de Fuca Strait. This alternative would entail the construction of off-loading facilities which would pump oil directly from the ships into a new pipeline to the Puget Sound refineries. Such a facility would divert all tankers except for those delivering crude to the U.S. oil refinery in Tacoma. Depending upon the design and type of facilities, the cost faced by refiners (offset by cost savings) from construction and operation of this facility would range from \$0.02 to \$0.04 per gallon (\$0.0001 to \$0.0002 per m^3). TMPL has examined the economic feasibility of this alternative at the request of the Subcommittee and has indicated this cost could be less. Current operators may find this alternative less expensive than the costs for extra pilotage, tug escorts, and other measures being considered at this time to reduce risks. Strong local resistance to such a proposal might be expected, but the overall benefits to the citizens of Washington and British Columbia could outweigh the social costs incurred by local area residents, through greatly reduced oil spill risk in Puget Sound and Georgia Strait from existing and future tanker traffic. A more precise assessment of the costs and benefits for local residents will need to be undertaken.

e. Canadian crude supply to Puget Sound refineries

Displacement of Alaska and offshore light crude by Canadian pipeline-delivered crude in Puget Sound refineries has been cited as an advantageous strategy. This strategy has limited effectiveness due to the very high production upgrading and retooling costs of the refineries (up to \$35 billion), and U.S. reluctance towards renewed dependency on Canadian light oil supplies. Should there be an elimination of the current U.S. ban on the export of Alaskan crude oil, or should Alaska reserves be exhausted, some light/medium oils could be supplied from Canada. The possibility also exists for blending of Canadian heavy and light/medium oils for supply to Puget Sound. In both cases, however, considerable investments would be necessary for upgrading and refining capacity in Alberta refineries in order to deliver suitable oils to the Puget Sound refineries. Such investments are not considered economic by industry under present and foreseeable market circumstances.

f. Reduced consumption from increased conservation, transit tax

A reduction in refined petroleum product transits could be partially achieved by a combination of a marine transit tax and reduced petroleum consumption by society.

g. No supply alternatives were identified to replace existing barge traffic.

2.5 Spill Risk Associated with Oil Supply Alternatives

a. Risk analysis of supply alternatives

Navigation-related risk reduction was analyzed for 5 hypothetical supply alternatives based on existing supply and the most likely alternatives identified in Sections 3.3 to 3.4 above. The analysis includes barge and tanker data, and includes crude oil, bunker fuel, and distillates. Worldwide and west coast accident statistics were considered in identifying risk along each of the route segments identified in the study region.

b. Tanker transits

The five alternatives and underlying assumptions are shown in Table 3 (page 34). Projected increases in transits to Puget Sound refineries were not included in the analysis due to lack of specific data. In the three "back-out" alternatives, tanker traffic to the U.S. oil refinery in Tacoma would continue since the crude oil used by this refinery cannot be easily delivered by pipeline.

c. Probability of spills

Table 4 (page 35) shows a comparison of the probability of spills of different sizes for crude and bunker oil under differing supply alternatives. A comparison is also shown between the status quo with and without all of the port and vessel safety improvements are assumed to be in place (see Table 5, page 36, for vessel improvements). In general, a greater than 1000 barrel spill is much more likely to occur than a spill in the larger size classes of crude and bunker, and could be expected to occur once every three years for all the alternatives considered, compared to approximately one per 15+ years for a greater than 420,000 gallon (1,588 m^3) spill and one per 153+ years for a spill in excess of 4.2 million gallons (15,876 m^3). This reflects the fact that the high proportion of barge shipments to tanker shipments (as per Table 1, page 32) do not substantially change in the various supply alternatives.

d. Probability of smaller barge spills and larger tanker spills

Since there are more barge transits than tanker transits in each alternative, a barge spill of bunker or crude oil greater than 42,000 gallons (159 m^3) is more likely than a large spill of bunker or crude of equal volume. Conversely, since tankers carry larger loads, the chance of a large spill is greater for tankers than barges.

e. Reduced probability of large spills with Juan de Fuca terminal

The different supply alternatives do not significantly alter the chances of smaller spills, due to their association with barge traffic. However, the choice of different supply alternatives does significantly affect the probability of larger, more environmentally damaging crude and bunker spills. The statistically expected years between a spill of greater than 420,000 gallons (1,588 m^3) is increased from 20 years, at present, to 31 years if the Puget Sound refinery tankers were backed out to a Juan de Fuca terminal (BO1). Eliminating the importation of oil to Puget Sound refineries creates such a dramatic impact that even if Vancouver traffic increases to its projected maximum, the chance of a spill greater than 420,000 gallons (1,588 m^3) of crude or bunker (Alternative BO2) would still be reduced. If increased port and vessel safety is also attained, the chance is further reduced to one in 53 years.

f. Reduced spill probability with increased crude oil movement

If all crude tanker traffic (excluding Tacoma traffic) in the expanded Vancouver shipment status quo alternative were removed to a Juan de Fuca terminal (BO3), the overall chance of a spill over 420,000 gallons (1,588 m^3) would be reduced by 32 percent over the status quo, i.e. the years between spills increases from 20 years, at present, to 29. For spills greater than 4.2 million gallons (15,876 m^3), the increase would be from 209 years to 249 years. This alternative is highly significant for risk reduction since it accommodates the projected increase in crude oil shipments anticipated for the region.

g. Freighters as significant potential source of small spills

The analysis also investigated the 10,000 to 12,000 annual transits of deep sea freighters, which, when fully fuelled, carry approximately 252,000 - 420,000 gallons (953 - 1588 m^3) of bunker fuel. A conservative estimate of total oil volume carried on these vessels amounts to some 40 percent of the total Alaska crude oil import volume or 5 times the total bunker and heavy fuel oil volume moved by tanker barges in the study region. The probability of a greater than 42,000 gallon (159 m^3) fuel spill from such freighters is 1 in 3 years, nearly the same as for an oil cargo vessel. Freighters represent a significant potential source of a smaller sized spill, as indicated in the Vancouver Harbor spill of March, 1990.

h. Underwater pipeline risk extremely low

In the calculation of risk for the Back Out Options, the probability of a spill from a rupture of the sub-sea portion of the pipeline was not included because it is extremely low (compared to the risk of spills from tanker and barge traffic). Using data from Bercha (1983) it was estimated that the expected years between spills for spills greater than 42,000 gallons (159 m^3) would be 1 in 1031 years (compared to 1 in 3 years for tank vessels).

2.6 Ship Based Improvements to Reduce Spill Risk and Volume

a. Potential reduction in risk of spills

In a more detailed study of tanker and barge safety, a number of ship based improvements were analyzed to establish an estimate of potential spill risk reduction. Several of these were shown to result in a potential risk reduction of greater than 10 percent. These improvements are depicted in Table 5 (page 36).

b. Double hulls - spill volume reduction

For both tankers and barges, the use of double hulls provides the biggest single improvement with a maximum achievable spill volume reduction of 50 percent and, in both cases, a realistic spill volume reduction of 37 percent. Double hulling of tankers should be directed at new construction to minimize cost and effect longer term safety improvements. Double hulls should be built on new Type II barges and retrofitted for those built within the past 5 to 7 years. Barges are subject to impact damage from frequent tug handling, and would benefit from isolated cargo tanks. An example of this type of damage was the Nestucca oil barge incident in which the barge collided with its tug in December of 1988. Other improvements which could result in spill volume reductions are onboard spill control systems (10-21%), vacuum systems for tankers (17-29%), and pressure vacuum valves for barges (2-6%).

c. Electronic chart display and information systems

The installation of advanced electronic navigation systems, in combination with mandatory Vessel Traffic Services and the new generation of positioning systems, offers a realistic risk reduction potential of 19 percent for tankers and 14 percent for barges. These systems can be implemented now at moderate cost. The Electronic Chart Display and Information Systems, (ECDIS) such as the Precise Integrated Navigation System developed in B.C., can display instantaneously, a ship's position, course, surrounding navigational hazards, and the position of other vessels by use of a shipboard computer, video monitor, and a link to a positioning system such as radar. Audible alarms can warn the bridge of hazards or course deviations.

d. Improved training

Improved training and qualification for personnel are highly rated, with a predicted realistic risk reduction, of 12-17 percent. The benefits of this improvement will be realized gradually over time, with more highly skilled crews involved in cargo transfers and transit. The gap between training of local versus foreign crews can be partly addressed by using mandatory escort vessels carrying full pollution abatement and cleanup equipment, as now required for the Port of Valdez. Onboard spill control systems with specialized spill response training are included in this category. Their effectiveness varies with such factors as tug escort, weather conditions, training, and type of cargo. Potential spill reduction is likely to be enhanced if escort tugs also carry oil spill containment equipment. Vessels generally lack spill contingency plans and are out of date or untested. Provisions should be made for updated, regularly tested plans which vary with type of cargo and geographical location.

e. Mandatory tug escorts

Mandatory tug escorts and assistance in harbors and in narrow passages rate at 8-11 percent as a risk reduction improvement for tankers. However, its realistic potential is reduced in light of the fact that industry has recently taken a number of initiatives on this item. Four tug escorts are now provided for any laden tanker from the Westridge terminal in Vancouver through the Second Narrows bridge. One 4000 horsepower tug accompanies the tanker during the transit of Boundary Pass and Haro Strait to Victoria. Similarly, a tug accompanies tankers inbound to Tacoma and to Rosario Strait from Dungeness Spit near Port Angeles. It is suggested that tug escorts be modern, highly maneuverable twin screw/thruster equipped with speed complementary to the tanker and power to control tanker direction. Power and number of escort tugs should be prearranged in proportion to the deadweight tonnage of the oil tanker. Transit courses should be preplanned.

f. Assignment of tugs and crews to specific barges

A simple, yet effective, change in barge operating procedures with a potentially high realistic risk reduction of 9-13 percent is the assignment of tugs and crews to specific barges for extended periods. Such crews become familiar with the location of emergency and other onboard systems as well as the handling characteristics of the barge. Differences among barge anchoring systems, tankage, and hoses can cause confusion during emergencies. Familiarity may also benefit docking and unloading and loading activities. In a similar vein, chartering of the same fleet by oil companies, rather than spot-chartering, may also yield a potential reduction of spill risk.

g. Improved certification and inspection

Improved certification and inspection measures are estimated to provide a realistic risk reduction of 4 percent for tankers and 6 percent for barges. The Canadian Coast Guard is not required to certify or inspect unmanned barges unless carrying pollutant cargoes, and only if the vessel was constructed after 1973. However, in 1988 nearly all foreign tankers and tank/barges in the Vancouver area were inspected. Thus, increased inspection and certification may effect only a marginal decline in risk reduction, especially since international data is available which identifies vessels and operators with histories of deficiencies or noncompliance.

h. Other improvements

Several other simple, low cost improvements will also provide spill risk reduction (Table 4, page 35). Many of these are now standard operating practice with most companies such as the use of the double pilots on sailings between Westridge terminal and Victoria, and use of a Puget Sound pilot from Port Angeles to Puget Sound refineries. Examples are mandatory pickup lines for barges, elimination of multiple tows, and mandatory use of twin screw tugs for barges.

i. Realistic risk reduction values

The values of Table 5 (page 36) indicate the maximum achievable effectiveness of vessel improvements. These values would only be realized if all accidents were related to navigation and geography and if all improvements were applied to every route segment in the study region.

2.7 Summary of Spill Risk Reduction Measures

(a) Vessel related improvements

The most effective tank vessel risk reduction measures which are both practical to implement and have the potential to substantially reduce existing risk levels are double hulls and electronic chart display information systems. The recommended priority for implementation is based on a combination of the expected time to implement, the cost of implementation and the relative risk reduction potentially achievable.

Double hulls are potentially the most effective single improvement that could be implemented, accounting for up to 70% of the maximum achievable risk reduction attainable through a combination of all practical vessel improvements. The drawbacks center around the high capital cost necessary to rebuild the existing Alaskan tanker fleet, and the lengthy time required for sufficient double hulled vessels to be in service before a significant risk reduction is realized. In spite of these known problems, the potential long-term benefits from double hulling are so great as to make it the highest immediate priority in this category.

Other improvements such as selective chartering have a high local effectiveness, but when applied regionally result in less than 10% overall reduction in future risk due to a variety of factors (e.g., the improvement is already applied over the route segments where it will have the most effect).

(b) Alternative transportation

A variety of alternatives for moving crude oil have been put forward. The "Canadian Crude" (replacing Alaskan and offshore tanker imports with Alberta oil via the existing Trans Mountain pipeline) and the "No Tanker" options are not considered viable in the next decade. This leaves some variation on the "Back Out" option (single common use terminal in Juan de Fuca Strait) as the only practical alternative transportation method for reducing tanker spill risk.

The option of a new transhipment terminal in Juan de Fuca Strait ("Back Out" option) offers a number of advantages which are not immediately apparent from a simple consideration of regional spill probabilities. Factors affecting the comparison of risk reduction from alternative transportation and vessel improvements are outlined in Appendix VIII. A common use terminal in Juan de Fuca Strait could reduce the frequency of crude oil spills everywhere on the west coast of British Columbia and Washington, regardless of the origin of tanker.

The Juan de Fuca transhipment (Back Out) option offers the opportunity to:

- reduce the risk of a large tanker spill by about half for the outer coastal areas west of Juan de Fuca Strait, and
- nearly eliminate this risk for the coastal waters inside (north and south of) eastern Juan de Fuca Strait.

(c) Spill response alternatives

The successful containment and recovery of oil at sea is subject to a large number of unpredictable factors, any number of which can easily result in a reduction in overall recovery effectiveness to less than 5% of total volume spilled for a large spill in transit. Even with the best available equipment, there is no assurance of being able clean up sufficient oil to substantially reduce the environmental impact, or subsequent shoreline clean-up costs. large expenditures on new spill response technology should not be a high priority in lieu of implementing spill prevention measures, except where there is a need to improve the capability of dealing with port and other smaller-sized coastal spills.

(d) Achievable risk reduction

Implementation of a combined set of vessel-related improvements in the construction and operation of tank vessels, together with a new Juan de Fuca terminal transportation supply alternative (Back Out 3), would result in a maximum predicted reduction of spill risk in the order of 77% for tank vessels in transit. It must be noted that the effective reduction of transit spill risk in the 1,000 to 5,000 barrel size range will be considerably less, due to the continuing potential for fuel oil (Bunker) spills from dry cargo vessels in transit and spills from barges unaffected by supply alternatives.

The implementation of any risk reduction measure which results in a substantial benefit (i.e., in excess of 20%) is not necessarily cost effective when viewed simply in statistical terms (probability of event multiplied by economic consequences). This should have no bearing on any decision to proceed with a plan to substantially reduce the risk of a large oil spill. The consequences of a catastrophic spill extend far beyond the calculation of direct economic consequences. A spill in excess of 100,000 barrels could well bankrupt all but the largest of corporations resulting in large scale economic disruption and job losses. Such a spill in the particularly vulnerable waters of the Puget Sound-Strait of Georgia basin would constitute an international environmental disaster with far ranging impacts on the quality of life in both Washington State and the Province of British Columbia.

Table 1

Summary of 1988 Crude Oil and RPP Shipments in the Vancouver/Puget Sound Region

	Total Annual Volume 1000 gallons (1000 m^3)	No. of Tanker Shipments (average vol. per shipment in 1000 gallons [1000 m^3] in parentheses)	No. of Barge Shipments (average vol. per shipment in 1000 gallons (1000 m^3) in parentheses)
Crude Oil			
. Imports to Puget Sound	6,700,000 (25,400)	333[1] (18,800-19,500) (71-74)	35[2] (4600) [17]
. Exports from Vancouver	328,000 (1,240)	14[3] (17,200) [65]	19[4] (4600) [17]
. Imports to Vancouver	>26,500 (>100)	n.a.	n.a.
Refined Petroleum Products			
. Deliveries in and from Puget Sound	2,900,000 (10,562)	243 (4,000) [15]	2,436 (794) [3]
. Deliveries in and from Vancouver Harbor -	917,000 (3,465)	n.a.	1,400-1,600[5] (580-600) [2.2-2.5]
Deliveries from outside region	264,500 (1,000[6])	n.a.	n.a.

[1] From Alaska (90% of deliveries), California, Indonesia and other offshore sources.
[2] Includes crude oil barged from Vancouver
[3] Heavy crude oil from Alberta
[4] Light crude oil from Alberta
[5] Approximate number of shipments leaving refineries. Includes some tanker shipments.
[6] Approximate imports, primarily by coastal tanker from California
n.a. - not available

Source: Shaffer Associates Ltd. (1989)

Table 2

Summary of Oil Spill Scenarios and Offshore Cleanup Effectiveness

SCENARIO	Rosario	Juan de Fuca	Haro St.	Anacortes	Lord Rock
Country of Origin	US	US	Can	US	US
Country Impacted	Can	Can	US	US	US
Oil Type	Crude	Crude	Bunker	Crude	Bunker
Time to impact, hours	3-82	61	24	13	42
Volume spilled, gallons (m^3)	7,980,000 (30,160)	7,980,000 (30,160)	462,000 (1746)	420,000 (1588)	588,000 (2220)
Volume on Shore;					
- emulsion	24,864,000 (93,990)	23,100,000 (87,220)	N/A	1,176,000 (4,445)	N/A
- oil equivalent	6,216,000 (23,500)	5,796,000 (21,900)	457,800 (1,730)	357,000 (1,350)	583,800 (2,200)
Percent of time when conditions allow offshore response [1]	24-54	18-35	24-54	24-54	6-26
Predicted length of initial shoreline oiling mi (km)	150 (250)	48 (80)	6 (10)	9 (15)	6 (10)
Assumed final extent of shoreline oiling for consequence evaluation mi (km)	630 (1050)	168 (280)	66 (110)	69 (115)	66 (110)
Percent recovered offshore [2]	2-6	2-3	42-95 [3]	16-37	9-41

[1] Low value corresponds to winter; high value corresponds to summer

[2] With 7 days available offshore, one "best practical" response system of boom and skimmer, no dispersant use, and no contained burning

[3] Assuming no emulsification of Bunker B. If this oil emulsifies, oil recovery in the Haro Strait Scenario would reduce by a factor of 12.

Source: DF Dickins Associates Ltd. (1990)

Table 3

Option Assumptions
Tankers Loaded with Crude

Route	Status Quo SQ	Expanded ESQ	Back Out 1 BO1	Back Out 2 BO2	Back Out 3 BO3	Avg. Load gallons (m^3)
	Loaded Tanker Transits by Option					
Westridge - OPS (TransMountain Pipeline)	24	139	24	139	0	17,531,976 (66,270)
OPS-Ferndale & Cherry Point	155	155	0	0	0	23,688,000 (89,540)
OPS-Anacortes	136	136	0	0	0	18,480,000 (69,850)
OPS-Entrance to Juan de Fuca	0	0	105	105	146	58,800,000 (222,260)
OPS-Tacoma	41	41	41	41	41	9,323,620 (35,240)
Total Port Calls	356	471	170	285	187	
Total Load*	6,987,960 (26,410)	9,004,130 (34,035)	6,977,000 (26,370)	8,993,200 (33,990)	8,967,080 (33,900)	

(1000 gallons [m^3]/year)

*Due to round off error, some total loads are slightly different

SQ: Assumes tanker traffic using existing routes described in Section 2.1
ESQ: Assumes expanded exports from Westridge and Petro-Canada as per Section 2.2, using existing routes
BO1: Considers offloading of offshore crude at end of Juan de Fuca, with current Vancouver traffic and routing
BO2: Considers Puget Sound offloading of foreign crude but expanded Vancouver shipments using current routes
BO3: Pipeline delivers increased oil volumes from Vancouver to a Juan de Fuca terminal, and foreign crude offloaded and piped to Puget Sound Refineries

Adapted from Cohen, Dickens (1990)

Table 4

Comparison of Expected Years Between Spills for Crude and Bunker Oil Shipments By Tanker and Barge for Various Oil Supply Alternatives

SPILL SIZE in gallons (m^3) [Barrels]	OIL SUPPLY ALTERNATIVES				
	SQ	ESQ	BO1	BO2	BO3
>42,000 (159) [>1000 barrels]	2.5 (6.6)	2.3 (6.1)	3.1 (8.1)	2.7 (7.1)	3.1 (8.1)
420,000 (1583) [>10,000 barrels]	20 (52)	15 (41)	31 (82)	22 (57)	29 (77)
4,200,000 (15,876) [>100,000 barrels]	210 (560)	150 (400)	300 (780)	190 (500)	250 (660)

(#): Number in brackets is expected years between spills if all safety improvements to ships and ports are implemented.

SQ: Assumes 356 port calls/year into Puget Sound and out of Westridge with tanker traffic using existing routes.

ESQ: Assumes expanded traffic from Westridge to 139 port calls/year with increased exports of Alberta heavy crude oil.

BO1 =Back out of tanker imports of crude oil into Puget Sound to new common use terminal in outer Juan de Fuca Strait, with no change in routing of tanker exports from Westridge (SQ).

BO2 =Same as BO1 but with expanded exports (ESQ) out of Westridge.

BO3 =Same as BO1 but with expanded exports (ESQ) transferred by pipeline to new common use terminal in Juan de Fuca Strait

Source: Adapted from Dickens (1990), Cohen (1990)

Table 5

Summary of Risk Reduction Values for Tanker and Barge Improvements

Selected Improvement	Estimated Risk Reduction
Double hulls *	36% - 50%
Vacuum systems on tankers *	17% - 29%
Onboard spill control systems with specialized spill response training *	10% - 21%
Pressure vacuum valves on barges *	2% - 6%
ECDIS, PINS	14% - 19%
Improved training and qualifications	12% - 17%
Designated tug crews for specific barges	9% - 13%
Double pilots on tankers	9% - 11%
Tug escorts for tankers	8% - 11%
Twin screws and twin engines	8% - 10%
Selective chartering	5% - 8%
Improved certification and inspection requirements	4% - 6%
Mandatory towing equipment for tankers/pick-up lines for barges	3% -4%
Remote-controlled anchor system for barges	2% -3%

* Percentage figure for first four improvements is an estimate of the reduction of volume of oil spilled once an incident has occurred.

Some of these improvements are already in place on certain route segments.

Source: DF Dickins Associates Ltd. (1990)

B. EMERGENCY RESPONSE SUBCOMMITTEE

1. Introduction

1.1 Assignment

a. the creation of a joint response plan;

b. an inventory of equipment, material and personnel available to either the Province or the States for use in oil spill control and clean-up operations;

c. joint spill response drills and training.

1.2 Accomplishments

a. The B.C./STATES EMERGENCY RESPONSE GUIDE has been produced and distributed in limited quantities for comment. There has been tremendous interest in the document and requests have come in from all over North America. (Appendix II)

b. The RESPONSE GUIDE has been used several times for notification. Most notably, the guide was used for the recent American Trader spill off Huntington Beach, California. The State of California reported that the guide generally worked well.

c. A RESOURCE GUIDE has also been compiled that outlines available equipment and contact numbers for the entire west coast of North America. This guide will be distributed to all signatories after acceptance by the Task Force Chairs.

d. The Task Force conducted its first joint drill with the U.S. Coast Guard/Canadian Coast Guard in January at Seattle. Many lessons were learned and planning is underway for future drills. It was felt that a catastrophic spill in the Georgia Basin would be better handled today as a result of out participation in the drill.

e. The sub-committee is working with the RRT to develop training and safety standards for employees as well as volunteers involved in marine oil spills. This is anticipated to be in place by April 1991.

f. A survey of communications frequencies has been conducted and will be shared with all jurisdictions.

2. Findings

a. Emergency management systems are not consistent on the West Coast. All jurisdictions and their respective private industries should adopt a form of the Incident Command System of emergency management. This would establish a common frame of reference for oil-spill response everywhere on the West Coast.

b. As a result of the Nestucca and Valdez spills virtually all jurisdictions and industries plans are under review and revision. With the exception of California, continual review and exercising of plans has not received a high priority until recently. It is gratifying to note that all parties are now working very hard on revising and exercising their plans. Contingency plans must be viewed as living documents and maintained with up-to-date information.

c. The formation of an inter-jurisdictional volunteer usage policy is precluded by the diverse laws of the various jurisdictions. However, every effort should be made to develop a trained and registered auxiliary prior to an incident rather than utilizing off the street volunteers. Spill response can be very hazardous and a trained group such as the Environment Youth Corps of B.C. will be more effective operationally. Native groups, tribes and commercial fishermen should also be considered as members of an auxiliary for their considerable local knowledge and experience.

d. More research into effective equipment and deployment methodologies is required. For example, the federal government has recently acted to fund and reopen the Oil and Hazardous Substances Environmental Test Tank (OHMSETT) in Leonardo, New Jersey. This facility will be used, in part, to test equipment and other technologies useful to respond to and clean up oil spills.

   State and Provincial agencies must increase their first response capabilities. While large equipment caches do exist and are being increased, the need for small quick response caches located in strategic areas based on hazard/risk assessments is great.

e. There are myriad radio-telephone communications frequencies used in oil-spill response on the west coast. Due to the over burdened frequency spectrum it is doubtful that dedicated radio frequencies could be assigned that all jurisdictions could access. Therefore, sharing of information and capabilities between jurisdictions and industry is of the utmost importance. All contingency plans should clearly outline communications systems and frequencies used and provide for mandatory notification of a spill to a central department within each jurisdiction.

f. The key to effective emergency response is prevention. The subcommittee found that effective prevention measures greatly reduce the size and scale of response required.

C. FINANCIAL RECOVERY SUBCOMMITTEE

1. Introduction

The goal of the Financial Recovery Subcommittee was to describe existing legal mechanisms available to Task Force members to recover expenses incurred and damages suffered as a result of a major marine oil spill.

The Washington State Attorney General's Office coordinated the production of the Subcommittee's report entitled Selected Cost Recovery Options and Issues Arising From a Maritime Oil Spill (Spring 1990) (See reference in Attachment II) The report describes state and provincial standing to maintain actions for recovery of costs and damages following a spill, including state rights and responsibilities as a public trustee in the protection of state resources. The document then outlines potential common law causes of action such as negligence and trespass and then identifies potential statutory remedies. Because maritime oil spills often involve traditional activities such as shipping, the document also describes admiralty law and its possible effect on the rights of Task Force members to recover costs and damages.

A "generic" field contract was also researched and designed for use by Task Force members for immediate on-site use. This short contract and accompanying instructions provide a mechanism for a Task Force member and an oil spiller to agree that the spiller will take financial responsibility for all or identified portions of governmental costs and damages.

2. Meetings

The subcommittee agreed that its task could be accomplished without face-to-face meetings. Instead, an initial draft of our report was prepared by the Washington State Attorney General's Office. The other subcommittee members then made comments and drafted additional sections. The same process was followed with respect to the generic field contract.

D. TECHNOLOGY SHARING SUBCOMMITTEE

1. Introduction

The Technology Sharing Subcommittee was given the responsibility to inventory and evaluate appropriate technology that would assist in the prevention and timely clean-up of oil spills, and to act as an exchange mechanism for technology issues between member agencies. The Subcommittee's effort resulted in the following products:

a. Petroleum Transportation Study

A study was completed which estimated the petroleum flows in Puget Sound and vicinity. The study identified four types of products, transport volumes, vessel types, and daily vessel routing activities by origin and destination. The research was conducted by the Institute for Marine Studies, University of Washington, with sponsorship by the Pacific Marine Shippers Association, Western States Petroleum Assn., Northwest Tugboat Assn., and Puget Sound Ship Operators Association (Leschine and Chadborne, 1989).

b. Equipment Inventories

An inventory of spill response equipment in Puget Sound, showing locations and quantity of equipment, and estimates of oil spill response times, was compiled. The inventory was prepared by Woodard-Clyde Consultants with sponsorship by the Clean Sound Cooperative (Woodward-Clyde Consultants, 1989).

In addition, the Clean River Co-Op, located in the Portland/Vancouver area and supported by several oil corporations, including ARCO, Chevron USA, Shell Oil, Texaco, Time Oil and UNOCAL, has updated its own equipment inventory and submitted it to the subcommittee. A variety of oil spill clean-up and communications equipment is stored and maintained at member dock and terminal locations. Burrard Clean has done the same for British Columbia. A comprehensive inventory of available clean-up and spill response equipment on the West Coast of North America has been completed by Emergency Response subcommittee with the assistance of Technology Sharing subcommittee.

c. Response Technology Evaluation

A review of over 65 suggestions for oil spill response and clean-up technology was prepared for the Technology Sharing Subcommittee. This report reviewed a variety of proposals for absorbent materials, marine transportation equipment, oil collection and containment devices, and other miscellaneous products and concepts (MacNeill, 1990).

An additional packet of technology and related clean-up proposals received by the Technology Sharing Subcommittee were forwarded to the United States Coast Guard Research & Development Center, Marine Systems Branch in Groton, Connecticut for evaluation. Proposals sent to the B.C. government were forwarded to Environment Canada, Technology Services, for review.

d. Analysis of Prevention Technology Measures

As time progressed, it was increasingly clear that prevention was the key issue, as response efforts to clean up major spills are at best only partially effective. Therefore, a technical review of the Task Force's "prevention measures" and other reports were developed by private consultant for the Subcommittee under the sponsorship of the Washington Department of Ecology.

2. Findings

2.1 Spill Response Activities

In response to concerns regarding spill response capability as a result of the Exxon Valdez spill, the American Petroleum Institute (a consortium of petroleum corporations) has proposed establishing the Marine Spill Response Corporation (MSRC) and funding several regional oil spill response locations, including West Coast locations. This organization has proposed and is currently implementing the establishment of an inventory of response equipment capable of responding to major oil spills from tankers and other vessels in waters contiguous to the United States and within the 200 mile (320 km) Exclusive Economic Zone, including harbors and river mouths.

The Clean Sound Cooperative in Puget Sound has established a large oil spill response inventory including a fleet of boats and skimmers. Location of equipment storage facilities corresponds to the place of business of member companies and contractors. Maintenance and inspection of Clean Sound equipment is performed regularly. Clean Sound plans to increase its capabilities including the possible use of dispersants whose usage may be allowed on a case-by-case basis in off-shore waters. Efforts are underway to: acquire an aircraft for distribution of dispersants; contracting aircraft for aerial surveillance necessary to track a spills; and, construction of additional skimmers are in progress.

The Burrard Clean Cooperative in British Columbia is working on a Memorandum of Understanding with the Canadian Coast Guard to provide cleanup services off the British Columbia coast. They will be contracting for a major skimmer and 50 foot (15 m.) spill response boat plus communications trailer for the Victoria area, a 630,000 gallon (2,380 m^3) barge with offshore boom deployment and skimming capability for the Prince Rupert area and a fast response skimmer and boom for the Campbell River area. In addition, they will be increasing equipment levels in the Vancouver area.

The three major spill cooperatives in California, Clean Coastal Waters, Clean Seas, and Clean Bay, are each increasing their equipment inventories. In addition, Clean Seas and Clean Bay have instituted programs to train and use the expertise of local commercial fishermen in spill clean up efforts.

Table 6

MAJOR WEST COAST MARINE TRANSPORTATION PETROLEUM SPILLS

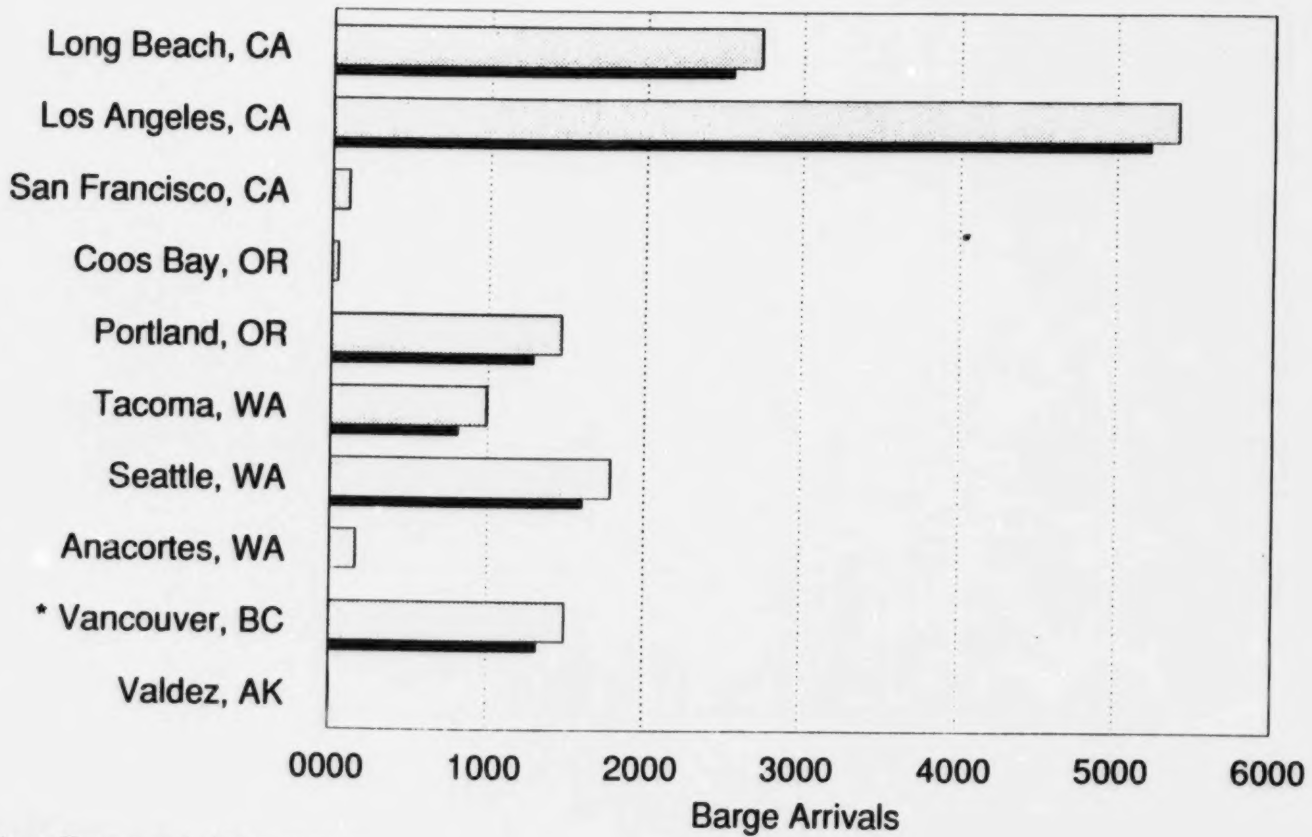
1979 - 1990

DATE	VESSEL	LOCATION	PRODUCT	AMOUNT gallons (m^3)	INCIDENTS
			1979		
5-13-79	Chugach Fisheries	Cordova, AK	Diesel	75,000	Ruptured Fuel Lines
11-8-79	Ryuyo Maru (Fishing)	St. Ful Is., AK	Diesel	220,000	Grounding
12-25-79	Lee Wang Zu (Freighter)	S.E. AK	Bunker Diesel	252,000	Capsized
			1980		
10-11-80	Prinsendam (Liner)	Gulf of AK	Bunker	188,000	Fire/ Sinking
12-28/ 12-29-80	John Mc Cone (US)	Long Beach, CA	Crude	84,000	Tank Rupture
			1981		
3-11-81	Dae Rim (Tanker)	Off Attu Is., AK	Diesel	130,000	Grounding
11-20-81	Aleutian Monarch (Fish Processer)	Udagak Bay, AK	Diesel	80,000	Fire
			1982		
8-19-82	Cornell (Barge)	Kuskokwim, AK	Heating oil	88,000	Sinking/ Controlled Release
			1983		
11-19-83	Blue Magpie (Freighter)	Newport, OR	Fuel oil	80,000	Grounding

DATE	VESSEL	LOCATION	PRODUCT	AMOUNT	INCIDENTS
			1984		
1-21-84	Cepheus (Small Tanker)	Anchorage, AK	Jet Fuel	180,000	Grounding
3-19-84	SS Mobil Oil (Tanker)	Warrior Rock, Columbia River OR/WA	Fuel oil	170,000-200,000 (643-756)	Grounding
6-30-84	Sundancer (Cruise Ship)	Maud Is., AK	Bunker/ Diesel	83,000	Grounding
9-13-84	USS Witchita	Pt. Reyes, CA	Diesel	122,000	Personnel Error
10-31-84	Puerto Rican (Tanker)	San Francisco, CA	Fuel and lube oil	1.5 million (5670)	Explosion & Fire
			1985		
12-21-85	Arco Anchorage (Tanker)	Port Angeles, WA	Crude oil	239,000 (903)	Grounding
			1986		
2-86	Apex Houston (Barge)	Central CA	Crude oil	25,872	Structural Failure
			1987		
1-06-87	Styvesant (Tanker)	AK	Crude oil	630,000 (2381)	Structural Failure
7-87	Glacier Bay (Tanker)	Cook Inlet, AK	Crude oil	131,250 (496)	
9-21-87	Pac Baronness (Bulk Carrier)	Santa Barbara, CA	Fuel oil	380,000 (1436)	Collision
10-02-87	Stuyvesant (Tanker)	Off Shore BC	Crude oil	600,000 (2268)	Structural Failure

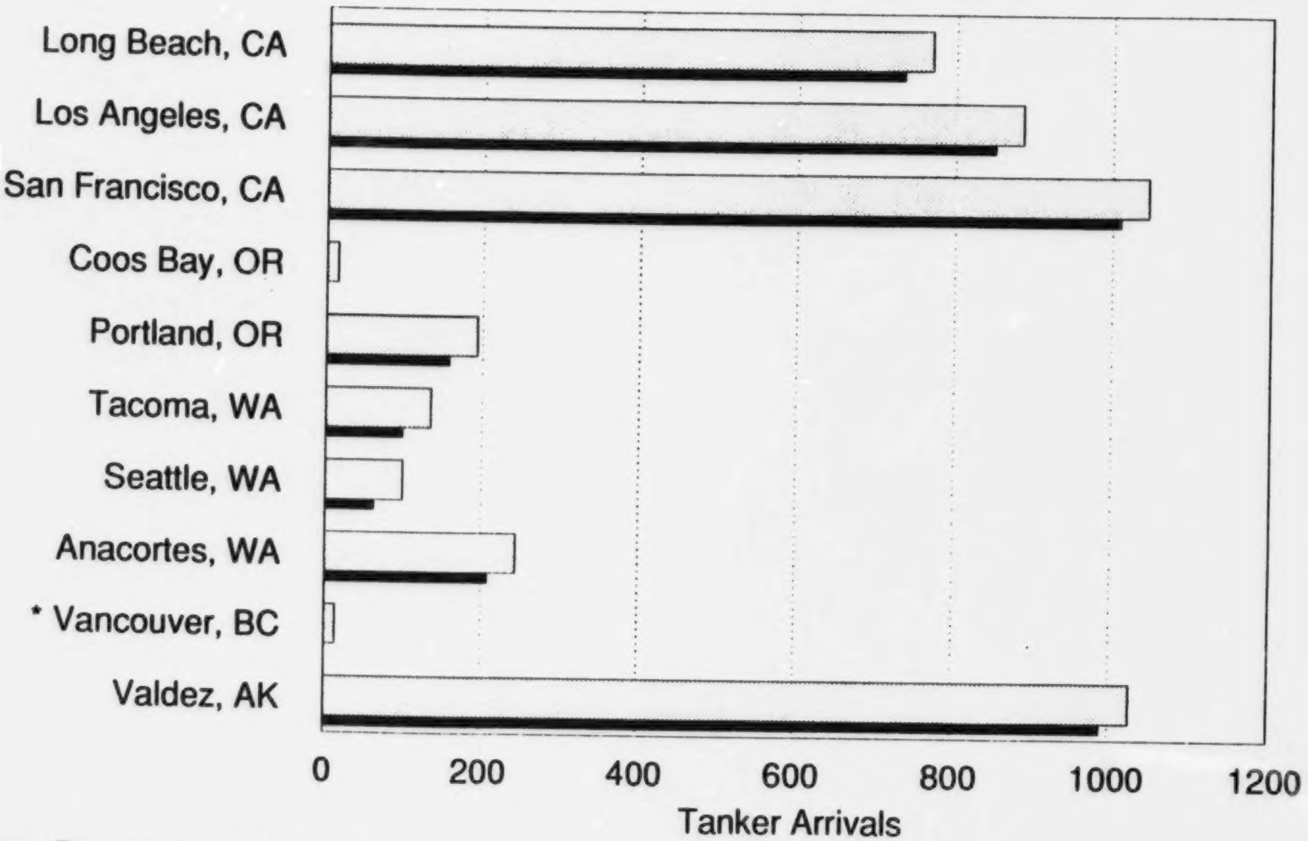
DATE	VESSEL	LOCATION	PRODUCT	AMOUNT	INCIDENTS
			1988		
1-22-88	Nestucca (Barge)	Ocean Shores, WA	Fuel oil	231,000 (873)	Collision
2-29-88	MCN #5 (Barge)	Shannon Point, WA	Heavy gas cycle oil/ light oil	73,500 (278)	
			1989		
3-24-89	Exxon Valdez (Tanker)	Prince William Sound, AK	Crude oil	10.8 million (40,824)	Grounding
11-14-89	Milos Reefer (Freighter)	St. Matthew Island, AK	Fuel oil	237,000 (896)	
			1990		
2-07-90	American Trader (Tanker)	Huntington Beach, CA	Crude oil	400,000 (1512)	Grounding

1987 Petroleum Barge Arrivals



All data from Townsend, 1990 except
British Columbia, which is Dickens, 1990
* Vancouver, BC data is for 1988

1987 Petroleum Tanker Arrivals



All data from Townsend, 1990 except
British Columbia, which is Dickens, 1990
* Vancouver, BC data is for 1988

IV. Development and Prioritization of Recommendations

A. BACKGROUND RESEARCH

The Task Force Subcommittees undertook specific background research into the subject areas of spill prevention, emergency, response, technology, and financial recovery. Existing reports were analyzed, particularly the recent reports by the Alaska Oil Spill Commission and by David Anderson to the Premier of British Columbia on Oil Transportation and Oil Spills.

A number of study contracts were issued to develop the basis for recommended actions and specific products such as an emergency response plan. Other products such as an oil spill/hazardous substance spill cost agreement, were developed directly by the subcommittees.

B. IDENTIFICATION OF WEAKNESSES

A result of the background research process was the identification of a number of weaknesses in the oil transportation system and in related government regulation and control over the system. These weaknesses result in potentially increased risks of an oil spill and were therefore identified as subject areas which Task Force recommendations needed to address. They are:

1. Human Factors: Human errors are the primary cause of many of the marine vessel collisions, groundings, fires and explosions. Personnel members and training, substance abuse, technology impacts and operating pressures are components of this issue.

2. Vessel Structure: Aging of the vessel fleet, the design and operation of vessels for economy versus spill safety, loadings and other factors are important topics of attention.

3 Vessel Inspection: At issue is the quality and frequency of inspections made by the Coast Guards and by the charter companies. The discrepancy between standards established by flag states and desired environmental standards of local jurisdictions are also an issue.

4. Vessel Movement: The level of participation in Vessel Traffic Services Systems, gaps in coverage, and quality of on-board navigational aids are important risk factors. Areas which need to be addressed include: over-reliance on technology, standards for escort vessels, local pilotage requirements, tanker size and speed limits, lack of near miss/close encounter reporting systems and limited maneuverability of large vessels.

5. Regulatory Systems: At issue is the vast array of regulations applicable to the maritime industry and the need for consistency and equity among carriers and shipping states.

6. Legislative Authority: The varied authorities of federal, provincial and state governments over oil spill matters create potential for legislation overlap and gaps in regulations. Clarification of responsibility, and cooperation among legislative bodies must be addressed.

7. Consumption: North American consumers have the world's highest per capita energy consumption, and the supply of petroleum products and oil will continue to be an issue unless alternative energy sources are found and/or consumption is reduced.

8. Spill Response: Lessons from the Exxon Valdez, Nestucca and other recent spill incidents underscore the sheer cost and logistics of responding to a coastal spill. Consideration for land based equipment stores, on board equipment, use of industry cooperatives and local expertise and manpower must be a focus of the Task Force recommendations.

C. FORMULATION AND SELECTION OF RECOMMENDATIONS

1. Based on the above identification of system weaknesses and background research, a series of draft recommendations was prepared. These recommendations incorporated the prevention, emergency response, technology, and financial recovery topics charged to the Task Force.

2. The Task Force undertook a detailed review of all draft recommendations. This preliminary review included a public meeting in Washington, where a list of candidate risk reduction measures was presented for comment. The review also included public mailings and notices to solicit public comment.

3. Recommendations which gained the full support of all the Task Force members were identified as "Joint" recommendations. Individual recommendations were identified as those which were specific to that state or province or which did not receive unanimous endorsement. The selection and categorization of recommendations as joint and individual member recommendations was based on criteria which included the following:

   a. potential to achieve desired result;

   b. approximate benefit compared to estimated cost of implementation;

   c. legal constraints upon implementation of the recommendation;

   d. public and industry feedback and level of support; and

   e. contribution of recommendation to an integrated control strategy, and its link to related recommendations.

D. PRIORITY GROUPING OF RECOMMENDATIONS

1. Upon identification and refinement of the Task Force recommendations, a prioritization process was used to establish levels of importance for action and implementation.

2. The Task Force is especially committed to implementation of all recommendations. However, as a general principle, the joint recommendations which are prevention focused and have the highest potential for spill risk reduction have been grouped together as the highest priority activities. The second priority level contains response-oriented recommendations that are expected to yield the highest return in improving or enhancing existing spill response capabilities. All other joint recommendations were placed in a third priority grouping for action. Individual state/province recommendation were not prioritized. Recommendations for Future Task Force Activities are listed as a fourth group.

3. Recommendations dealing with prevention issues were rated on the basis of the results of Task Force subcommittee studies. Tank vessel improvements which were estimated to result in a reduction in spill probability of 15 percent or more were also given high priority.

4. The priority groupings based on Task Force findings are enhancing existing spill response capabilities. All other joint recommendations were placed in a third priority grouping for action. Individual state/province recommendations were not prioritized. Finally, Recommendations for Future Task Force Activities have been listed as a fourth group.

First Priority: Recommendations which are prevention focused with highest potential for spill risk reduction:

Number	Recommendation
1	Petroleum Conservation
2	Alternative Transportation
5	Vessel Traffic Service Systems
8	Vessel Safety Measures
10	Double Hulls
11	Onboard Navigation Improvements
12	Petroleum Facility Worker Training
13	Mariner Qualifications
15	Crew Requirements
17	Strong Sanctions
18	Proof of Financial Responsibility
21	Liability Limits
22	Coast Guard Enforcement
24	Prevention Plans
26	Local Participation
28	Vessel Inspections
29	Prevention Education
35	Transfer Containment

Second Priority: Recommendations which are response focused with highest expected return in improving and enhancing spill response capabilities:

Number	Recommendations
14	Tug Crew Training
19	Natural Resource Valuation
20	Cost Recovery
25	Response Plans
27	Clean Up requirements
31	Response Training
32	Wildlife Rescue Training and equipment
34	Response Drills
36	Contingency Plans
37	Public Involvement
38	Mutual Aid
39	Incident Command System

Third Priority: All other joint recommendations:

Number	Recommendations
3	Tug Escorts - Single Propulsion
4	Tug Escorts - Tonnage Requirements
6	Near Miss Report System
7	Tow Cables
9	Tow Systems
16	Dedicated Tug Crews
23	Enforcement Staff
30	Transfer Operations Review
33	Onboard Response Equipment
40	Research Coordination

Recommendations for Future Task Force Activities:

41	Annual Meeting
42	Interstate Compact
43	Petroleum Industry Response Cooperatives
44	Information Sharing
45	Coordination of Studies
46	Spill Equipment Update

V. RECOMMENDATIONS

The following Task Force recommendations are categorized to distinguish between those which have the full support of all the Task Force members (Joint Task Force Recommendations) and those which are specific to that state or province (Individual Member Recommendations). Furthermore, they are subdivided by the technical nature of the issue to assist the reviewer in analyzing recommendations with similar characteristics.

The **recommendations are not in priority order**; the Task Force priorities are detailed in the previous section. The recommendations vary as to the governmental body which has authority to make the suggested changes, and will be forwarded to the appropriate "authorizing agent" through mechanisms identified in an implementation strategy (page 92).

The main objective of the Task Force, as reflected in the following recommendations, is to continue to work towards coordination in the prevention of and response to oil spills on the Pacific coast. Two aspects of this effort are particularly important: mutual assistance among the members for catastrophic spills, and interjurisdictional procedures for transboundary spills. To achieve these objectives, the Task Force will continue to work together to implement similar response procedures to ensure consistency among the separate jurisdictions. To minimize the need for any response, recommendations to prevent spills occurring along the coast have been developed and given highest priority.

A. JOINT TASK FORCE RECOMMENDATIONS

Vessel Traffic Reduction

RECOMMENDATION 1: Petroleum Conservation

Implement programs designed to reduce petroleum consumption, such as conservation measures (including appliance and automobile efficiency standards, recycling, and effective mass transit), alternative energy source research, and economic incentives.

SOURCE: Anderson, D., Report to the Premier

AUTHORIZING AGENT: U.S. Congress/Canadian Parliament/State legislatures

IMPLEMENTING AGENT: Federal/Provincial/State energy, environmental, and transportation agencies

RATIONALE: Oil spills are strongly linked to transport procedures and ultimately will decrease if petroleum consumption were to decline. One limited method of petroleum conservation involves decreased fuel consumption, attainable through encouraging wide use of mass transit, improving appliance energy efficiency standards, economic incentives, and upgrading automobile fuel efficiency requirements (Anderson, 1989). Reducing the production of petroleum derivatives, such as plastics, will also lower the need for petroleum transport. Further research into alternative energy sources, such as solar power, will lessen dependency on petroleum as an energy source. These strategies should be supplemented by increased public education efforts. This approach would have environmental benefits beyond reduced spill risks, such as reduced potential for global warming and decreased use of non-recyclable products (Steiner, undated). It should be noted that many alternative energy sources, as well as various conservation methods, will not eliminate certain demands for petroleum products and subsequent transport needs. For example, solar energy will not likely meet automobile fuel needs in the near future, despite its evolving success for other uses.

RECOMMENDATION 2: Alternative Oil Transportation

Review proposals for alternative transportation modes which would reduce petroleum transportation by tanker in high risk and environmentally sensitive areas. In reviewing any proposals, Task Force members are committed to insuring compliance with all applicable state/provincial/federal laws, including their processes to involve the public.
SOURCE: Public comment

AUTHORIZING AGENT: U.S. Congress/Canadian Parliament/Federal administrative branches/state and provincial governments

IMPLEMENTING AGENT: Federal/Provincial/State agencies

RATIONALE: Alternative sources of energy and conservation will provide only a portion of our energy needs for years to come, as many technological, economic, and distribution questions are still being resolved. The ability of alternative sources to reduce oil consumption will also be limited by the fact that many will only reduce fuel use in electrical production, which is not a major use of oil on the West Coast, and in many cases will make only a limited contribution to such major oil uses as transportation. Proposals for alternative transportation projects must go through the normal permitting process. Permitting procedures normally include appropriate reviews of a proposal's economic feasibility and the degree of environmental risk associated with the project. It is important that Alternative Transportation projects clearly reduce the net environmental risk of petroleum transportation in the entire region.

Vessel Traffic Management

RECOMMENDATION 3: Tug Escorts - Single Propulsion

Require tug escorts for all single boiler or single engine, and single screw tank vessels carrying oil or other petroleum products in waterways designated as high risk by an individual state or province.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: U.S. Congress/Canadian Parliament/State legislatures and administrative branches

IMPLEMENTING AGENT: Canadian/U.S.Coast Guards and in California - Port/Harbor Safety Committees

RATIONALE: While many vessels are equipped with double boilers and double screws (propellers), single propulsion vessels are highly vulnerable to power failures and subsequent loss of maneuvering ability. In April 1989, the Exxon Philadelphia lost power and was adrift without power or steerage off Cape Flattery, Washington for hours (Puget Sound Water Quality Authority, 1990). Requiring tugs for single propulsion vessels would provide an immediate back-up propulsion source in the event of power failure, and serve as a substitute to requirements of double boilers or auxiliary thrusters. The Commander of the 13th U.S. Coast Guard District is considering a proposal of rule-making for a similar measure. Inherent in this measure is the need to require tugs with horsepower sufficient to the size of the escorted vessel. According to Dickens (1990), each tug escort falls in the ten thousand dollar range.

RECOMMENDATION 4: Tug Escorts - Tonnage Requirements

Review and, if appropriate, reduce dead weight tonnage specifications for tug escort requirements.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: State legislatures/Canadian Parliament

IMPLEMENTING AGENT: States in cooperation with the Canadian/U.S. Coast Guards, and in California - Port/Harbor Safety Committees

RATIONALE: Numerous west coast ports experience high levels of tanker activity, dominated by large-volume shipments of crude oil. In many areas, vessel traffic requirements are based on tanker size. For example, tankers over 40,000 DWT entering Puget Sound must have a tug escort (Puget Sound Water Quality Authority, 1990). However, some small coastal tankers carrying oil and other petroleum products are less than 40,000 DWT. A review of current escort requirements would reveal whether a reduction in dead weight tonnage specifications is an appropriate measure to improve tanker navigation control. According to Dickens (1990), each tug escort falls in the ten thousand dollar range.

RECOMMENDATION 5: Vessel Traffic Service Systems

Upgrade vessel traffic service systems by replacing outdated equipment, eliminating gaps in coverage, increasing operator training and assignment length, and establishing mandatory participation in vessel traffic service systems in high-risk or congested areas.

SOURCE: Anderson, D. Report to the Premier.

AUTHORIZING AGENT: Canadian/U.S. Coast Guards and International Maritime Organization

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Installation of modern computerized equipment would allow display of a ship's speed, direction, and the time interval to reach a nearby hazard. In some areas, gaps in coverage exist. For example, the Puget Sound system does not have coverage south of Vashon Island, despite numerous tanker and barge deliveries in 1989 to refineries and chemical facilities in Tacoma. Congress has appropriated $4 million to buy computerized radars for northern Puget Sound and $4 million to cover the area south of Seattle (Puget Sound Water Quality Authority, 1990). In California, the Coast Guard is continuing its efforts to extend the vessel traffic separation scheme between San Francisco and Los Angeles. Even where modern, comprehensive VTS systems are in operation, VTS operators only serve an advisory role to traffic management. However, during extraordinary events, it is necessary to direct and/or manage vessels to assure safe passage. Problems are exacerbated by the presence of pleasure boats and commercial fishing boats that are not required to report their positions to the VTS (Puget Sound Water Quality Authority, 1990). Current USCG rotation practices of VTS operator assignments may not provide operators with local experience necessary for a mandatory vessel direction system.

RECOMMENDATION 6: Near Miss Reporting System

Establish, on a trial basis with a subsequent assessment of usefulness, a near miss reporting system which links directly with vessel inspection information, vessel traffic, and vessel casualty database systems.

SOURCE: Public comment

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: "Near misses" between two vessels are serious indications of spill risk. While federal aviation regulation monitors and records "near miss" incidents, no equivalent exists in maritime traffic control. Recording "near miss" actions provides data for evaluation of vessel traffic safety systems, communication systems, and other details of maritime navigation to assure proper changes are identified and realized. (Puget Sound Water Quality Authority, 1990). This data could be accessible to port managers and vessel inspectors, providing more information for ship traffic decisions.

RECOMMENDATION 7: Tow Cables

Develop and implement a mandatory set of guidelines for tugs on tow cable size and material specifications, cable maintenance practices, cable handling equipment design, and barge recovery plan preparation.

SOURCE: Washington Dept. of Ecology, Nestucca Oil Spill Report

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: As demonstrated by the 1988 spill of the Nestucca barge off the coast of Washington, proper towline attachment may prevent many accidental cargo releases. Using single towlines of materials and sizes appropriate to conditions and vessel size may eliminate the need for double lines, which can increase fouling risks. Tow cables may fail if not kept in good condition by regular maintenance. In the event of tow separation, barge recovery can be facilitated by a detailed plan which considers a variety of external conditions, and installation of backup systems such as a trailing recovery line and Orval hook.

RECOMMENDATION 8: Vessel Safety Measures

Establish regional safety measures, including speed limits, based on escort vehicle or other limitations, for all laden tank vessels in inland waters and their critical approaches.

SOURCE: Public Comment

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Successful tug escorts must be able to keep up with assigned vessels. U.S. pilot simulator studies have shown that with a five percent horsepower/dead weight ton ratio, tug escort effectiveness declines at speeds above 10-11 knots. Reports from a Canadian Review of Tanker Safety Workshop described decreases in tug escort effectiveness as tanker speed increases from 6 to 8 knots (Anderson, 1989). Bridge simulation exercises by Washington state pilots also revealed that tankers travelling at 15 knots could overcome tug escorts; consequently, pilots voluntarily have established an 11 knot speed limit in Rosario Strait (Puget Sound Water Quality Authority, 1990). On the Trans-Alaska Pipeline System route, ships are sometimes operated at high speeds to meet industry deadlines, which increases vessel wear (USCG, 1989). The Commander of the 13th U.S. Coast Guard District is considering proposal of rule-making on speed criteria. In some states, conditions may be placed upon vessel traffic during inclement weather. While laden vessels carry the largest threat of spilling oil, several Task Force representative expressed concerns that non-laden vessels increase oil spill risk if not subject to laden tanker safety measures.

RECOMMENDATION 9: Tow Systems

Require towing systems and plans on all tankers carrying oil and other petroleum products.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Towing cable winches can be installed near the bow of petroleum tankers to improve the ease with which the vessel can be brought under tow. When it is necessary to bring a tanker under tow due to mechanical failure, it is often difficult to pass a heavy tow line from a tug to the large vessel - particularly during inclement weather (Anderson, 1989). The presence of a towing system on the tanker makes it easier to winch the tow cable down to the tug. All tankers vessels using the Port of Valdez have towing packages mandated by the U.S.C.G. (Dickens, 1990). The International Maritime Organization (IMO) has standards for towing packages and recently has recommended that all tanker vessels over 100,000 DWT be fitted with a towing package; refitting tankers to these standards is possible (Anderson, 1989). Dickens (1990) estimates a small (1-2%) reduction in oil spill risk associated with these systems. The Commander of the 13th U.S. Coast Guard District is considering the proposal of rule-making which would require emergency tow plans on oil and chemical tank ships. Tanker towing systems cost $50-100,000 per installation (Dickens, 1990).

Vessel Design

RECOMMENDATION 10: Double Hulls

Require double hulls for all new tank vessels designed to carry oil or other petroleum products as cargo.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: U.S. Congress/Canadian Parliament

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Most tank vessels in service today have a single hulls. Double hulled vessels have void spaces around the cargo and tank sides, providing extra protection from spill risks. A 1975 U.S. Coast Guard study of 30 oil spills in U.S. waters from tankers occurring between 1969 to 1973 concluded that double bottoms would have contained some 90 percent of the oil spilled (Anderson, 1989). A USCG study on the Exxon Valdez oil spill suggested that up to 60 percent of the product loss could have been avoided if the vessel had been designed with a double hull (AOSC, 1990). Dickens (1990) associates an estimated 36-50 percent reduction in spill probability with double hulls. Conoco and ARCO have revealed plans to utilize double hulls or bottoms (Seattle Post-Intelligencer, 1990; Nalder, 1990). The U.S. Congress passed legislation, which was signed by the President on August 18, 1990, requiring phase out of single hull vessels over the next 20 years. Dickens (1990) states that while double hulls are a long-term measure for tankers, and while retro-fitting existing single-hull tankers with double hulls may be impractical, double hulls should be required for all new barges and retrofit on barges 5-7 years of age.

Objections to double hulls concern potential explosions from gases trapped in void spaces, human safety risks, expense, and complications in hull inspections and salvage operations. Gases discharged from void spaces may degrade air quality, and therefore require use of elaborate emission control devices. The National Academy of Sciences and the Secretary of Transportation are now conducting studies to evaluate these and other advantages and disadvantages of double hull construction. If the National Academy of Sciences report finds no significant net advantage in double hulls, the Task Force should reconsider its recommendation. Dickens (1990) estimates an added $1.5 million costs for construction of double hulls on a typical barge, and an additional $8 million for construction of a typical tanker.

RECOMMENDATION 11: Onboard Navigation Improvements

Require all tankers carrying oil or other petroleum products in coastal and inland waterways to possess and operate an onboard navigation system, such as an Electronic Chart Display Information System (ECDIS).

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Instruments such as Electronic Chart Display Information Systems (ECDIS), which consists of a shipboard computer, video monitor, and linkage to a positioning system, can display a ship's course and position and indicate the presence of vessels or other navigational hazards on a digital chart. They can provide information much more rapidly than some conventional navigation tools, saving valuable time during crisis situations. A preliminary report by Dickens (1990) associates an estimated 20-30 percent reduction in oil spill risk with ECDIS systems. Art McKenzie, director of the Tanker Advisory Center, recommends equipping all tankers with ECDIS (Dickens, 1990). Dickens (1990) estimates installation costs of $50-100,000 per installation.

Personnel

RECOMMENDATION 12: Petroleum Facility Worker Training

Require state/province certification of training programs for managers, workers, and safety officers at terminals which handle oil or other petroleum products. Program certification requirements should include spill prevention and response training.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: State legislatures/Provincial Parliament/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial/Canadian licensing agencies

RATIONALE: Human error is responsible for a large fraction of spills which occur at facilities and on vessels (Dickens, 1990). Some states, such as Washington, do not require licenses or training certification for managers, safety officers, and other workers at cargo terminals. Requiring certification of training programs, linked to a requirement that such workers complete a certified program, would reduce the risk of spills during transfer procedures, increase human safety, and ensure the likelihood of an efficient response. Training should emphasize transfer operations, automation, and emergency operations. The Alaska Oil Spill Commission (1990) has recommended licensing oil transportation safety managers in complement to mariners. In B.C., most facilities involving the maritime transport of bulk oil would be under federal control. Some smaller facilities under provincial lease could be subject to B.C. regulation.

RECOMMENDATION 13: Mariner Qualifications

Require more stringent mariner qualifications, including spill prevention and response training, simulator training, vessel class and size restrictions on deck officer certification, and alcohol and drug testing.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Up to 90 percent of all tanker casualties occur due to flaws in human performance in either operation or maintenance (USCG, 1989). The Coast Guards hold responsibility for training requirements of licensed marine officers. Improved training requirements for tank vessel personnel would decrease the risk of spills, promote human safety, and increase the likelihood of an efficient response to a marine casualty incident. Training should emphasize transfer operations, automation, and emergency operations. Simulator training on routine and emergency vessel operation should be incorporated when appropriate, although no tank vessel bridge simulator centers exist on the west coast of the United States (AOSC, 1990). The Task Force supports industry efforts to establish such a training center on the west coast.

Officer licenses are not vessel-specific, allowing officers experienced with small freighters to operate supertankers as well (USCG, 1989). Finally, alcohol abuse may have been a factor in the wreck of the Exxon Valdez. Alcohol and/or drug testing could occur prior to sailing, and following serious marine accidents (Anderson, 1989). Dickens (1990) attributes a 12-17 percent reduction in spill probability to increased qualification requirements and improved training.

RECOMMENDATION 14: Tug Crew Training

Mandate oil spill response training for all tug crews involved in tank vessel operations.

Authorizing Agent: Canadian/U.S. Coast Guards.

Implementing Agent: Canadian/U.S. Coast Guards.

Rationale: Tug escorts and tugs towing barges are in critical positions to provide assistance in the event of spillage from a vessel. Adequately-trained tug operators can enhance this oil spill response capacity. Subcommittee findings suggest that such training in combination with other on-board factors can reduce the potential size of a spill through early containment.

RECOMMENDATION 15: Crew Requirements

Require two licensed officers (including pilot where appropriate) to be present on the bridge of all tankers carrying oil or other petroleum products while in inland waterways. Require adequate crew levels, sufficient to meet normal and emergency operation needs, for tank vessels carrying oil or other petroleum products.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: The presence of an extra officer on the bridge of the Exxon Valdez would have significantly reduced the likelihood of the March 1989 grounding (AOSC, 1990). As a preventive measure, two licensed officers (including a pilot) could be present on the bridge as tankers carrying oil navigate inland waters. This would assure that fatigue, language barriers and limited local navigation experience is not the cause of a vessel casualty.

With the rise in automated systems, the U.S. Coast Guard has authorized reductions in staffing requirements. U.S. regulations currently require six hour rest periods prior to watches, but do not insure this time is not spent on activities such as eating (USCG, 1989). Understaffing and crew fatigue were pinpointed as significant defects leading to the Exxon Valdez spill (USCG, 1989). Reduced crew levels also decrease human safety and the effectiveness in emergency operations. The Commander of the 13th U.S. Coast Guard District is considering proposal of rule-making on upgraded manning requirements. Each additional crew member involves costs ranging from $30-90,000.

RECOMMENDATION 16: Dedicated Tug Crews

Assign dedicated tug crews to specific classes of tugs and tank barges carrying oil or other petroleum products to assure familiarity with tug and tank barge operating characteristics.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Certain classes of barges and tugs possess different structural characteristics. During an emergency response, these differences can lead to confusion among tug crews. Tow safety can be enhanced by using tug crews that have familiarity with features of a certain tug and barge class, such as location and operation of valve systems. Dickens (1990) associates an estimated 22-30 percent reduction in oil spill risk with a similar measure.

Enforcement, Penalties, and Liability

RECOMMENDATION 17: Strong Sanctions

Legislate strong levels of civil and criminal sanctions for noncompliance with oil spill regulations.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: State legislatures/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial/Canadian environmental agencies

RATIONALE: Increasing the severity of penalties can motivate self-imposed industry safety practices such as improved training and vessel maintenance. Wenk et al. (1982) linked large penalties and strong enforcement by the Canadian Coast Guard and Royal Canadian Mounted Police to improved seamanship. Washington State can impose criminal sanctions for willful endangerment of property or public health, and civil penalties of $100,000 each day the product is in the water for reckless or intentional spills. California can issue cease and desist orders as well as cleanup and abatement orders, impose unlimited liability for resource damage and impose considerable civil and criminal penalties. Alaska state law allows assessment of up to $500 million per incident for all unlawful discharges (SB 502). When these costs are passed to stockholders, the investment market may also pressure industry to increase spill prevention efforts. Recent amendments to the B.C. Waste Management Act have significantly increased fines for infraction of Provincial regulations, and impose criminal sanctions on corporate officers. B.C. can impose a penalty of $3 million for intentional damage to the environment or other actions showing disregard for human life or safety.

RECOMMENDATION 18: Proof of Financial Responsibility

Raise state/Canadian federal proof of financial responsibility requirements to ensure spillers can finance oil spill related cleanup and damage costs.

SOURCE: Puget Sound Water Quality Authority, Spills Issue Paper

AUTHORIZING AGENT: State legislatures/Provincial Cabinet/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial/Canadian environmental agencies

RATIONALE: Some state and federal requirements mandate operators of oil tankers and facilities to prove their ability to meet financial liability requirements through insurance, bonds, or other means. This increased level of financial commitment protects federal cleanup cost recovery, but does not necessarily protect individual states or provinces. Increased proof of financial responsibility requirements also promotes insurance and bond company interest in spill prevention methods (Puget Sound Water Quality Authority, 1990). In California, newly enacted legislation (SB 2040, statutes 1990 - Chapter 1248) requires proof of available financial assets or insurance of at least $500 million for tankers.

RECOMMENDATION 19: Natural Resource Valuation

Develop and require use of methods of natural resource valuation which fully incorporate non-market and market values in assessment of damages resulting from spills.

SOURCE: Public Comment

AUTHORIZING AGENT: State legislatures/Provincial Cabinet/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial/Canadian natural resource and environmental agencies

RATIONALE: Large but accurate natural resource damage assessments can motivate industry to self--impose safety practices such as improved training and vessel maintenance. For the most part, natural resource damage assessments historically have excluded non-market costs (e.g. "non-consumptive" considerations such as aesthetic damage), reducing the effectiveness of financial responsibility requirements, and passing unassessed costs to non-responsible parties. A large body of non-market valuation techniques exist, each with various weaknesses. Without a standardized technique, non-market valuations will continue to be inconsistent and challenged. B.C. and Washington are currently using a common approach to identify non-market values of resources damaged by the Nestucca barge spill.

RECOMMENDATION 20: Cost Recovery

Develop responsible party contracts to aid in the recovery of all natural resource damage and cleanup costs.

SOURCE: Financial Recovery Subcommittee

AUTHORIZING AGENT: State administrative agencies/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial financial management, natural resource, justice, and environmental departments/Canadian Federal Agencies

RATIONALE: Following a spill, disagreements over costs, reimbursement, and financial responsibility can impede cost recovery efforts. A field contract developed by the Financial Recovery Subcommittee can be used on-site to expedite cost recovery. This short contract provides a method for a government jurisdiction and an oil spiller to agree that the spiller take financial responsibility for all or particular portions of costs and damages incurred by the government jurisdiction.

RECOMMENDATION 21: Liability Limits

Remove any ambiguity in federal law and guarantee a state's right to fully exercise its own liability standard. Increase the maximum limit of liability for oil pollution damage under Canadian law.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: U.S. Congress/Canadian Parliament

IMPLEMENTING AGENT: State legislatures/U. S. Congress/Canadian Parliament

RATIONALE: Spill liability is not an effective deterrent unless it entails costs above those of prevention measures. The Task Force believes spillers should bear the full burden of liability for damages against other parties. Parties responsible for oil spills currently face limited financial responsibility for cleanup and resource damage costs. Until recently, the federal Clean Water Act limited liability for spill-related costs for vessels (excluding inland barges) to $150 per gross ton, or $250,000, whichever is greater. Based on this figure alone, the Exxon Valdez would face total liability of $14.25 million, in contrast to reports that Exxon has already spent over $1 billion (Puget Sound Water Quality Authority, 1990). Recent federal legislation raises these ceilings and removed federal preemption of state liability limits (Puget Sound Water Quality Authority, 1990). The U.S. Congress passed legislation, which was signed by the President on August 18, 1990, raising federal financial responsibility evidence requirements from $150 per gross ton to $1,200 per gross ton. Liability is unlimited where willful misconduct or negligence occurs. In the case of Canada, federal legislation could be amended so as to provide for increased liability for oil pollution damage.

RECOMMENDATION 22: Coast Guard Enforcement

Increase the Coast Guard's ability to conduct routine on-water surveillance patrols by increasing funding to U. S. Marine Safety Offices and Canadian Coast Guard Regional Offices.

EXPLANATION OF CHANGES: Recommendation, and authorizing and implementing agents amended to correct inadvertent omission of Canadian jurisdiction.

SOURCE: Public comment

AUTHORIZING AGENT: U.S. Congress/Canadian Parliament

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: Visible enforcement operations can raise levels of safety in mariner operations. Wenk et al. (1982) linked severe penalties and strong enforcement by the Canadian Coast Guard and Royal Canadian Mounted Police to improved seamanship. Drug interdiction and other expanding national security duties have reduced U.S. Coast Guard resources devoted to maintaining safe transportation of oil and other hazardous materials. U.S. Coast Guard testimony regarding the Exxon Valdez described reduction of enforcement activities in Alaska since 1984, while budget decreases have limited on-water patrol activities in Puget Sound (Puget Sound Water Quality Authority, 1990). Vessel inspection programs are understaffed; inspectors lack access to important maintenance, safety, and repair records for foreign vessels (USCG, 1989). Recent U.S. federal legislation will increase Coast Guard resources.

RECOMMENDATION 23: Enforcement Staff

Establish adequate environmental resource agency staffing level devoted to enforce compliance with spill planning requirements, and aggressively pursue legal action against violators.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: State/Provincial/Canadian environmental agencies

IMPLEMENTING AGENT: State/Provincial environmental agencies; Canadian Coast Guard

RATIONALE: Visible enforcement operations can raise levels of safety in mariner operations. Wenk et al. (1982) linked severe penalties and stiff enforcement by the Canadian Coast Guard and Royal Canadian Mounted Police to improved seamanship. Environmental quality agencies often can not support necessary staff levels devoted to enforcement. Spill prevention planning requirements are only valid if supported by strict enforcement (AOSC, 1990). In California, newly enacted legislation (SB 2040 statutes 1990 - Chapter 1248) has provisions for use of a state oil spill fund for these purposes.

Regulatory Oversight

RECOMMENDATION 24: Prevention Plans

Require all facilities (and tank vessels larger than 10,000 dwt) which handle oil or other petroleum products to develop and implement spill prevention plans, which would at a minimum include risk-reducing transfer methods and personnel training specifications.

SOURCE: Public comment

AUTHORIZING AGENT: State legislatures and administrative branches/Provincial Parliament and administrative branches/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial/Canadian environmental agencies; Canadian/U.S. Coast Guards

RATIONALE: Some states, such as Washington and California, now require certain facilities to develop and follow oil spill contingency plans. Under the Clean Water Act, the U.S. EPA requires petroleum facilities to develop and use Spill Prevention, Control, and Countermeasure (SPCC) plans (Puget Sound Water Quality Authority, 1990). Contingency plan requirements could be updated to incorporate new technology, and expanded to require prevention plans (including personnel training specifications) for all tank vessels and facilities which handle oil or other petroleum products. Increased enforcement funding would promote compliance with prevention plan standards. The Washington Department of Ecology could implement this recommendation as an addition to HB 2494 which passed in the 1990 legislative session, which required the development of response plans.

RECOMMENDATION 25: Response Plans

Require all facilities (and tank vessels larger than 10,000 dwt) which handle oil or other petroleum products to develop and implement spill response plans, which would at a minimum include response time, equipment, and staff support specifications.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: State legislatures and administrative branches/Provincial Parliament and administrative branches/Canadian Parliament

IMPLEMENTING AGENT: State/Provincial/Canadian environmental agencies/ Canadian Coast Guard

RATIONALE: Some states, such as Washington and California, now require certain facilities to develop and follow oil spill contingency plans. Under the Clean Water Act, the U.S. EPA requires petroleum facilities to develop and use Spill Prevention, Control, and Countermeasure (SPCC) plans (Puget Sound Water Quality Authority, 1990). Contingency plan requirements could be updated to incorporate new technology for all tank vessels and facilities which handle oil or other petroleum products. Increased enforcement funding would promote compliance with prevention plan standards. The Washington Department of Ecology could implement this recommendation as an addition to HB 2494 which passed in the 1990 legislative session, which required the development of response plans.

RECOMMENDATION 26: Local Participation

Each state/province shall recognize and utilize local citizen expertise and knowledge in spill prevention and response efforts. This may include a volunteer training and coordination plan to enhance preparedness.

SOURCE: Public Comment

AUTHORIZING AGENT: State/Provincial environmental agencies

IMPLEMENTING AGENT: State/Provincial environmental agencies

RATIONALE: The aftermath of the Exxon Valdez oil spill demonstrated the strong commitment and expertise that local citizens can provide to spill response and planning. Community members have detailed knowledge of available resources, nearby environmentally-sensitive areas, and strong bonds to preserving local habitats and lifestyles.

RECOMMENDATION 27: Clean Up Requirements

Ensure that all state, provincial, and federal agencies act in full cooperation to require the spiller or other responsible party to meet all applicable state, provincial, and federal performance requirements.

SOURCE: Public comment

AUTHORIZING AGENT: State, provincial, and federal agencies.

IMPLEMENTING AGENT: State, provincial, and federal agencies.

RATIONALE: When a major spill comes ashore, state and local economies and natural resources catch the brunt of the effects. Therefore, it is reasonable that state and local governments need a strong voice in response decisions. U.S. federal legislation gives the Coast Guard a stronger, more centralized, more clearly defined role as a director of the response. U.S. federal oil spill legislation provides that for the purposes of the National Contingency Plan, cleanup is considered complete when determined so by the President in consultation with the governors of affected states, and that additional removal actions may be carried out under state law. State and local governments need assurance that their requirements and requests are implemented.

RECOMMENDATION 28: Vessel Inspections

Require periodic (but not less than every two years) structural and mechanical integrity inspections of vessel equipment and hull structures on all tank vessels carrying oil or other petroleum products. Develop a priority inspection system for more frequent inspections of particular tanker features essential to safety, and for certain tankers, equipment, and companies with a history of stress fracture incidents and other safety problems.

SOURCE: Public comment

AUTHORIZING AGENT: Canadian/U.S. Coast Guards where state/provincial authority does not exist.

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards; State Agencies where such authority already exists.

RATIONALE: Tankers traveling south from Valdez, Alaska experience extreme weather conditions and exposure to strong sea forces. Strain on the hulls at various points can form minute cracks which eventually may weaken the hull to a point of failure. The U.S. and Canadian Coast Guards both operate tanker inspection programs. In some areas, U.S. Coast Guard inspection programs have faced budget cutbacks, resulting in a greater frequency of inspections through private classification societies. Beyond visual inspections, placement of sensors in various locations can provide data to the bridge on hull stress. Periodic comprehensive hull inspections and integrity analysis would eliminate flaws before they reached critical stages.

Education

RECOMMENDATION 29: Prevention Education

Develop a joint spill prevention education strategy for industry and the public, including a program aimed at preventing small chronic oil spills by operators of fishing vessels, ferries, ports, cruise ships and marinas.

SOURCE: Puget Sound Water Quality Authority, Spills Issue Paper

AUTHORIZING AGENT: State legislatures and administrative branches/Provincial Cabinet

IMPLEMENTING AGENT: State/Provincial environmental agencies

RATIONALE: There is a significant need in the respective jurisdictions for an enhanced public education effort which will help minimize the number of major and minor oil spills and illegal dumping. A cooperative effort among the Task Force members would lessen the cost to the tax payers and potentially expedite the development of the program. While the Exxon Valdez spill demonstrated the devastating consequences of a catastrophic oil spill, small chronic releases of oil may lead to damaging cumulative impacts on marine ecosystems. Chronic on-water spills from ports, marinas, fishing vessels, and ferries contribute to the cumulative impact of oil spills (Puget Sound Water Quality Authority, 1990). These accidental discharges could be reduced by a broad public education effort on prevention technologies and techniques, such as methods to minimize contaminated bilgewater releases by fishing boats. This program could target commercial and recreational fishermen, port and marina operators, and ferry operators and focus on reducing bilge water contamination, minimizing spills of hazardous substances during routine maintenance and refueling, and proper disposal of hazardous wastes. Because preparation of brochures and other public education materials can achieve economies of scale, the member states and British Columbia could benefit from a joint effort.

Transfer Operations

RECOMMENDATION 30: Transfer Operations Review

Review the adequacy of and make appropriate improvements in equipment, operating procedures, and the appropriateness of existing West Coast locations used for transfer of oil and other petroleum products (with particular emphasis on non-dockside locations).

SOURCE: Public comment

AUTHORIZING AGENT: Canadian/U.S. Coast Guards/State administrative branches

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards; and in California - Port/Harbor Safety Committees

RATIONALE: Deep draft tankers are often partially unloaded or fueled by barges while anchored offshore due to restricted access to terminal facilities. Accidental spills during lightering, bunkering, and other transfers of petroleum products to and from vessels are a main contributor to chronic oil pollution (Dickens, 1990). Some transfer locations may pose inappropriate spill risks due to hazardous weather or traffic conditions or ecological sensitivity. New technology in transfer valves, oil sensors, and other equipment may be available to reduce likelihood of mishaps. Bathymetric information for marine terminals may be inadequate, a problem evidenced by the Huntington Beach spill of the American Trader.

Spill Response Enhancement

RECOMMENDATION 31: Response Training

Develop, in cooperation with the Coast Guards, industry, and local communities, local programs to provide spill response training to fishing boat operators, ports and harbor districts, and marinas, and local communities.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: State administrative branches/Canadian Parliament

IMPLEMENTING AGENT: State/Canadian environmental agencies; Industry

RATIONALE: Commercial fishing boats may be the first vessels to arrive at the scene of an oil spill. Local fishing boats could be fitted with response equipment, and fishermen could be trained in proper response procedures (Townsend and Heneman, 1989). Local fishermen, experienced in the waters and resources of Prince William Sound, provided valuable assistance in response to the Exxon Valdez spill (AOSC, 1990). Without proper equipment or training, fishermen may be unable to provide effective help in containing the spill. In California, the Clean Seas and Clean Bay industry cooperatives have undertaken this task, and have resolved many liability stumbling blocks. New technology may allow fishing boats to store boom or skimming equipment without significantly limiting space for gear or fish. Gillnetters and other boats have reels and drums which can handle and deploy booms. The California Department of Fish and Game trains wardens to clean up oil spills by offering a required three-day training session, hiring private contractors to teach specialized operations, and sending wardens to the California State Training Institute for further instruction. At this time, the California Conservation Corps does not receive specialized training in oil spill response; however, such training is now being organized and should begin within the year. Because preparation of education materials can achieve economies of scale, the member states and British Columbia could benefit by a joint effort.

RECOMMENDATION 32: Wildlife Rescue Training and Equipment

Develop and oversee joint programs which provide wildlife rescue volunteer training. Work with industry and others to acquire wildlife rescue equipment, including mobile equipment.

SOURCE: Emergency Response Committee

AUTHORIZING AGENT: State/Provincial administrative branches

IMPLEMENTING AGENT: State/Provincial environmental agencies; Industry

RATIONALE: Properly trained wildlife rescue volunteers and auxiliary staff enhance oil spill cleanup capability. Local programs, supported by industry and state/province funding, could develop and conduct training programs. Washington House bill 2494 established the Washington Wildlife Rescue Coalition, a group responsible for coordinating rescue and rehabilitation of wildlife injured by spills of petroleum or other hazardous materials. The bill also permits the Washington Department of Wildlife to adopt rules regarding wildlife volunteer training courses and exercises. Standardization of wildlife rescue protocols among the Task Force members would allow wildlife rescue volunteers to respond to spills along the entire west coast using consistent techniques. The BC Government's Environment Youth Corps has proven to be very effective in this role. In California, the Governor, in negotiations with the Secretary of the Interior, required in federal lease sales that facilities are available for the capture and care of oiled or injured sea otters, pinnipeds, and seabirds. In California, newly enacted legislation (SB 2040, Statutes 1990-Chapter 1248) authorizes the Department of Fish and Game to establish and operate marine mammal rescue and rehabilitation stations.

RECOMMENDATION 33: Onboard Response Equipment

Require all tank vessels carrying oil or petroleum products to have onboard response equipment for commencement of spill response efforts as soon as practicable, in amounts and types appropriate to the vessel's class and size.

SOURCE: Prevention Alternatives Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards

RATIONALE: The more rapid a response to a spill of petroleum, the more likely cargo will be contained (Dickens, 1990). On-board availability to stored cleanup equipment, such as collapsible booms and a deployment boat, oil recovery equipment, and bladder tanks for temporary product storage, could allow a faster response when combined with shore-based operations. The general type and quantity of equipment required could be standardized for specific classes of vessel and cargo. Because the crew's first priority in the event of a spill would be to secure the vessel and ensure safety, such equipment should provide on-scene staging of equipment necessary to support shore-based response teams. The Prevention Alternatives Subcommittee findings indicate a 10-21% reduction in spill probability when this action is taken with other training and equipment improvements. Costs would be in the hundred thousand dollar range for tankers; they presumably would be less for barges.

RECOMMENDATION 34: Response Drills

Conduct a major spill response drill in each of the Western coastal states/provinces at least annually, with joint Coast Guard cooperation when the drill area crosses international boundaries. The drills should emphasize interjurisdictional simulations and all Task Force members should be invited to participate in to the other member's drills.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: Canadian/U.S. Coast Guards

IMPLEMENTING AGENT: Canadian/U.S. Coast Guards/Industry

RATIONALE: On February 28, 1990, the U.S. Coast Guard conducted an oil and hazardous materials spill response drill for Puget Sound, involving participation by industry, state, provincial, and federal agencies, private citizens, and the Canadian Coast Guard (Doughton, 1990). California also recently conducted a major exercise. Such events improve the readiness and decision-making abilities of response teams in the event of an actual spill. Industry employs a number of private contractors for spill response in coastal and inland waters on the west coast, but simulation drills mainly derive from state and federal coordination. Recent federal legislation emphasizes response drills. A fund financed by industry, including cleanup contractors, could allow state and federal agencies such as the U.S. Coast Guard to conduct drills more frequently. The February 28, 1990 drill in Puget Sound cost approximately $50,000 (Doughton, 1990).

RECOMMENDATION 35: Transfer Containment

Require placement of booms and other appropriate equipment, such as in-water oil sensors, around tank vessels during transfers of oil or other petroleum products in areas designated by individual states/province.

SOURCE: Public comment

AUTHORIZING AGENT: State Port Authorities, State/Provincial environmental agencies, or Canadian/U.S Coast Guards where state/provincial authority does not exist.

IMPLEMENTING AGENT: State Port Authorities, State/Provincial environmental agencies, or Canadian/U.S Coast Guards where state/provincial authority does not exist.

RATIONALE: Lightering, bunkering, and other transfers of fuel and petroleum cargo to and from vessels present relatively high spill risks. Surrounding barges and tankers with boom during these operations would improve the likelihood of containment in the event of a spill. Floating oil sensors have been developed which sound an alarm upon contact with contaminated water. Some state or provincial agencies, such as the Washington Department of Ecology, may already possess statutory authority to require these practices for docked vessels through facility contingency plan requirements. Note that Port Authorities already have this authority.

RECOMMENDATION 36: Contingency Plans

Revise state/provincial contingency plans to include the Emergency Response Subcommittee's Mutual Aid Plan, including continual updates of the "call down" lists.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: State/Provincial/Canadian environmental agencies

IMPLEMENTING AGENT: State/Provincial/Canadian environmental agencies

RATIONALE: When transboundary spills occur, use of a consistent mutual aid plan facilitates a smooth coordinated response effort. The Emergency Response Subcommittee developed a Mutual Aid Plan to allow integration of related contingency plans and outline the interacting roles of the various responding parties. Included in the plan are descriptions of agency functions for each Task Force Member jurisdiction, flow charts, and an agency telephone list.

RECOMMENDATION 37: Public Involvement

Ensure that all appropriate governmental agencies, industry, and interested citizens have the opportunity to become involved in development of major spill response policies and plans.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: State/Provincial environmental agencies

IMPLEMENTING AGENT: State/Provincial environmental agencies

RATIONALE: The Exxon Valdez incident demonstrated the need to coordinate spill response planning with local and tribal organizations in order to maximize access to available resources (AOSC, 1990). Public input also allows response policies to reflect local priorities. Citizen's groups in Prince William Sound have played an active role in monitoring the condition of beaches following withdrawal of cleanup crews.

RECOMMENDATION 38: Mutual Aid

In the event of a major spill affecting the waters and coastline of a Task Force member, other Task Force members will cooperate to the fullest extent possible to provide back-up equipment and personnel to respond to the emergency.

SOURCE: Alaska Task Force Meeting

AUTHORIZING AGENT: State/Provincial environmental agencies

IMPLEMENTING AGENT: State/Provincial environmental agencies

RATIONALE: The transboundary effects of the Nestucca spill has shown that each Task Force member has an interest in a rapid and effective response to an oil spill in waters of its neighboring states/province. The Exxon Valdez further showed that a catastrophic spill can overwhelm the response capability of any one jurisdiction. In California, certain spill equipment is required to remain on location as a result of regulatory permit requirements. As was shown in the response to the American Trader spill, however, this equipment can be moved to the site of an emergency in a timely fashion as long as the necessary approvals are obtained and alternative coverage of other facilities is ensured.

RECOMMENDATION 39: Incident Command System (ICS)

The Task Force members should adopt a form of an Incident Command System (ICS) to enhance their ability to manage responses to major spills of oil and other petroleum products.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: State/Provincial environmental agencies

IMPLEMENTING AGENT: State/Provincial environmental agencies

RATIONALE: There is no common emergency management model in use for response to oil spills that threaten one or more jurisdictions. The Incident Command System was developed during disastrous fires in Southern California in the 1970's. Since then forms of the ICS has been adopted and used successfully throughout North America. The ICS organization structure is based on functions and duties required on the scene of the emergency. The selection of staff to perform these duties is based on skills and expertise required in an emergency, rather than on any existing hierarchy in the response agency or office. The response team is comprised of people from different agencies and offices if necessary. Adopting a modified ICS would provide clear command and control and the functional units needed to respond to a spill.

Research

RECOMMENDATION 40: Research Coordination

Encourage, fund where feasible, and coordinate oil spill research, with emphasis on west coast issues, through university systems and other means, and develop a framework for information sharing and combined funding projects.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: State legislatures/Provincial Cabinet

IMPLEMENTING AGENT: State/Provincial/Federal environmental agencies; industry

RATIONALE: Physical and biological characteristics specific to the West Coast may require spill response and prevention approaches which differ from generalized methods. Support for university oil spill research could encourage studies on prevention and cleanup strategies particular to the region. Many technological questions surrounding regional spill prevention and response remain unanswered, such as the potential impacts of dispersants, or the effectiveness of tanker speed limits. The Alaska Oil Spill Commission (1990) recommended creation of a state oil spill prevention and response research center operated through the University of Alaska system. A report to the Premier of British Columbia calls for research coordination between Alaska, British Columbia, and Washington universities, as well as with U.S. and Canadian federal agencies. Examples of existing programs which the Task Force may want to participate in or expand upon include: 1) reopening of the Oil and Hazardous Substances Environmental

Test Tank (OHMSETT) by the U. S. federal government; 2) The "University Initiative" which includes a multi-campus research consortium based at the University of California, Santa Barbara funded jointly by the U. S. Minerals Management Service and the State of California; and 3) The University of California Toxic Substances Training and Research Program.

Structure and Process of the Task Force

RECOMMENDATION 41: Annual Meeting

Meet annually, with responsibility for the meeting location rotated uniformly among the Task Force members; meetings will include reports by each member on progress in implementing recommendations. Each Task Force member will independently ensure the involvement of interested parties and the public in their respective jurisdiction. Task Force members will review and where appropriate, modify recommendations during annual meetings.

SOURCE: Memorandum of Cooperation

AUTHORIZING AGENT: States/BC Task Force

IMPLEMENTING AGENT: States/BC Task Force

RATIONALE: Implementation of Task Force recommendations will require ongoing coordination. An annual meeting could provide a foundation from which other ad hoc Task Force efforts could arise. A corresponding annual drill will allow the Task Force members to assess need for future response planning. The meeting site and responsibility for meeting logistics would be rotated each year to a different Task Force member.

Multi-state/province compact

RECOMMENDATION 42: Interstate Compact

Work cooperatively with the Western Legislative Conference in their evaluation of the advantages and disadvantages of developing an interstate compact to make binding agreements concerning spill prevention and cleanup measures on the West Coast.

SOURCE: Alaska Oil Spill Commission, Final Report

AUTHORIZING AGENT: Western States Legislative Conference in cooperation with the States/B.C. Task Force; and ratification by the appropriate Legislative bodies

IMPLEMENTING AGENT: To be defined by the Compact

RATIONALE: Interstate compacts offer several advantages to states which share a similar problem or strategy. First, compacts are a mechanism to support and promote objectives with federal weight on a regional level. Secondly, compacts can be a mechanism to gain consistency between west coast state and provincial spill programs and requirements. However, to establish a compact, it may be necessary to gain approval of each affected state legislature as well as the U.S. Congress. In addition, it is questionable whether interstate compacts could extend to Canadian provinces.

Studies and Other Recommendations

RECOMMENDATION 43: Petroleum Industry Response Cooperatives

Conduct a review of Marine Spill Response Corp's. (MSRC's), Burrard Clean's, and other spill clean-up cooperative's proposals and schedules for west coast spill response centers.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: States/B.C. Task Force

IMPLEMENTING AGENT: States/B.C. Task Force

RATIONALE: Evaluations of the Exxon Valdez response effort criticized the lack of available response equipment. This prompted an initiative by the American Petroleum Institute to establish five regional oil spill response centers along the U.S. coast (Anderson, 1989). The centers will be funded by industry fees on oil transport vessels, and coordinated through a Washington, D.C. headquarters called the Marine Spill Response Corporation. Each center will be supplied with personnel and containment equipment, including boom, skimmers, dispersants, and aircraft, and will be capable of responding to a 8.4 million gallon (31,750 m^3) spill. API estimates a total cost of more than $250 million over five years. It is important for the industry to beef up capacity to respond to major and catastrophic spills.

RECOMMENDATION 44: Information Sharing

Share reports and other information regarding oil spill prevention and response among Task Force members (e.g. information on spill response worker training and liability issues). Following major spill events in Task Force jurisdictions, the Task Force members will participate in a debrief and take appropriate action, including changes to recommendations. These activities should not jeopardize litigation efforts by Task Force members.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: States/B.C. Task Force

IMPLEMENTING AGENT: States/B.C. Task Force

RATIONALE: The Task Force process has established a pathway for information exchange. In the future, the Task Force can continue to share information uncovered by individual members. For example, Washington has investigated questions on volunteer effectiveness and liability which other Task Force members could find useful.

RECOMMENDATION 45: Coordination of Studies

In the event of a major trans-boundary spill affecting the waters and coastline of two or more Task Force members, those affected members will coordinate their subsequent studies and activities designed to identify damage, restore the natural environment, and pursue damage claims.

SOURCE: Emergency Response Subcommittee

Authorizing Agent: State/Provincial Administrative Agencies

Implementing Agent: State/Provincial Administrative Agencies

Rationale: Experience from the Nestucca spill suggests a considerable advantage in damage claims if all affected jurisdictions utilize a coordinated approach to inventorying resources, assessing damage, estimating losses to wildlife, and undertaking studies of replacement costs, non-consumptive values, and other resources. Where transboundary spills occur, the affected member agencies should move to coordinate their activities in this fashion to more accurate and defensible arguments and more reliable inventories.

RECOMMENDATION 46: Spill Equipment Updates

Review annually, and update if necessary, response equipment lists and mutual aid provisions for response to catastrophic spills. Continue to work towards consistency among the members in individual contingency plans and response criteria.

SOURCE: Emergency Response Subcommittee

AUTHORIZING AGENT: States/B.C. Task Force

IMPLEMENTING AGENT: States/B.C. Task Force

RATIONALE: There is a significant need for continued information sharing to assure mutual aid in the event of a major spill. Updates will keep response lists current in the face of personnel and acquisition changes.

B. INDIVIDUAL MEMBER RECOMMENDATIONS

British Columbia Recommendations

Recommendation BC-1: Oil Supply Import Alternative

The Province of British Columbia should support and cooperate with Washington in any evaluation of a possible common use terminal in the Juan de Fuca Strait, with pipeline transport of offshore and Alaska crude oil to Puget Sound refineries.

Authorizing Agent: Washington Legislative Branch/Provincial Cabinet

Implementing Agent: Washington Environmental and Energy Agencies

Rationale: Tanker traffic into the Puget Sound refineries constitutes over 80 percent of the total tanker traffic in the B.C./Washington area. An offloading terminal at the entrance to Juan de Fuca Strait would greatly reduce environmental risk. The estimated risk reduction is significant, both within the Puget Sound-Strait of Georgia basin (where the risk of a major spill would be virtually eliminated) and in Juan de Fuca Strait and the outer coasts of BC and Washington (where these risks would be reduced by a least 50%). A preliminary proposal identified to the Prevention Alternatives Subcommittee by Trans Mountain Pipe Line Company Ltd. appears to have very high potential for achieving the intent of this recommendation, and a more detailed evaluation is encouraged.

Recommendation BC-2: Oil Supply Export Alternative

The Province of British Columbia should support and encourage industry evaluation of a pipeline to divert Alberta heavy crude oil from Vancouver to an export terminal or loading facility at the entrance to Juan de Fuca Strait.

Authorizing Agent: Canadian National Energy Board and Federal Government/Washington State

Implementing Agent: Industry

Rationale: The loading of oil tankers at the entrance to Juan de Fuca Strait would eliminate the vast majority of loaded tanker-transits from Vancouver through the highly sensitive Puget Sound/Georgia Strait area. This is of particular importance given the projected increase in tanker shipments from Vancouver. It would accommodate projected increases in oil shipments yet reduce the number of spills expected by up to 32% when combined with the common use facility identified in Recommendation 1. As Trans Mountain Pipe Line Company Ltd. is the only supplier of crude oil to Vancouver Harbor, its preliminary proposal to the Prevention Alternatives Subcommittee to build such a pipeline and terminal should be encouraged.

Recommendation BC-3: Provincial Response Strategy

The Province of British Columbia should establish a document outlining its strategy for marine oil spill preparedness and response programs.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: Considerable confusion exists in the public mind over jurisdiction, roles and responsibilities governing response to a marine spill. Release of a concise strategy to the public will greatly assist in clarifying the provincial role and interest, and will lay a foundation for provincial programs to improve spill preparedness and response.

Recommendation BC-4: Provincial Response Role

The Province should confine its role in marine oil spill response to the cleanup and restoration of provincial beach and shoreline resources.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: The Subcommittee findings on environmental risk suggest a limited range of effectiveness of offshore oil containment and cleanup. Federal jurisdiction over navigation and fisheries also restrict the opportunity and necessity for Provincial activity on the sea. Provincial ownership of the beach and intertidal zone and the presence of biological and cultural resources also dictate that the Province should focus its role in oil spill response on the protection and cleanup of nearshore and onshore resources. This position should be clarified for the public and other agencies involved in oil spill response through the release of a Provincial Oil Spill Response Strategy and the development of memoranda of understanding with such agencies.

Recommendation BC-5: On-Scene Response

The Province of British Columbia should adopt a policy of immediate on-scene response to a major marine spill rather than awaiting proof of liability on the part of the spiller before action, or awaiting the response of the spiller.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: The Province has an obligation to protect environmental resources, regardless of whether or not the spiller is liable for damages. Experience with the Nestucca spill suggests the citizens of British Columbia are not prepared to leave the first response to the spiller. The position of the Province should be to arrive on scene and work cooperatively with other agencies to control the situation. The resources of the spiller should be directed under the supervision of provincial and federal agencies. This recommendation is also reflective of those identified in the Anderson Report.

Recommendation BC-6: Oil Spill Response Fund

The Province of British Columbia should establish and maintain an ongoing Oil Spill Response fund through reallocation of a portion of the provincial tax on gasoline and petroleum fuels.

Authorizing Agent: Provincial Legislature

Implementing Agent: Ministry of Finance and Corporate Relations, Treasury Board

Rationale: A large pool of funds is necessary to ensure that the Province can purchase and stockpile equipment in the event of a spill, as well as finance the immediate costs of spill response. Funds are also necessary for a number of critical response programs, such as coastal sensitivity mapping and response team training. Since the navigation risk studies show that refined petroleum product deliveries constitutes a major source of spills, a portion of provincial taxes on these products should be allocated to this fund. Both Washington and California are imposing a barrel tax on oil for similar purposes.

Recommendation BC-7: Multi-Agency Response Planning Committee

The Province of British Columbia should establish a Multi-Agency Response Planning Committee to lay the groundwork for properly coordinated planning of preparedness and response to oil spills.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: The Subcommittee findings suggest that small barge spills and spills from ordinary vessel collision are liable to continue, despite reductions in tanker traffic. A Marine Spill Response Committee is necessary to ensure that many agencies with jurisdiction over marine matters and coastal resources plan cooperatively in anticipation of a marine spill. Harbor Commissions, port authorities, the Canadian Coast Guard, Environment Canada and several B.C. Ministries and local government associations would benefit from joint action to clarify roles, avoid duplication of acquisition and stockpiling of equipment. This recommendation is compatible with the concept of an oil spill response agency and other related recommendations of the Anderson Report, to the extent that it lays the groundwork for properly coordinated response.

Recommendation BC-8: Coastal Sensitivity Information System

The Province of British Columbia should continue its efforts to inventory coastal resources and to develop an electronic information system for coastal resource sensitivity and spill protection countermeasures.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: The Subcommittee findings reflect the lack of detailed resource information on which to base environmental risk assessments and related spill countermeasures. They also reflect the enormous potential for shoreline impact of a spill in B.C. waters and the relative ineffectiveness of containment and recovery of oil at sea. As recommend in the Anderson Report, data requirements have been established and a number of contracts have been completed to obtain resource information from Native groups and other sources. However, funding currently precludes coverage of all high risk areas and prevents the initiation of an electronically-based system. The Province should demonstrate its commitment to oil spill protection through this measure, with funds derived from the Oil Spill Response fund proposed above.

Recommendation BC-9: Response Equipment Network

The Province of British Columbia should cooperate with federal agencies and industry to establish common access equipment inventories and stockpiles along the British Columbia coastline for spill containment and cleanup.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: At the present time, both federal and provincial agencies are identifying equipment needs and establishing stockpiles for future spills, as was generally recommended in the Anderson Report. There is considerable advantage in these agencies coordinating their purchasing and stockpile locations along with industry to enable a comprehensive network of equipment stores to be developed along the high risk areas of the coast as identified in the Subcommittee findings. Findings relating to emulsification of oil and its implications for cleanup effectiveness and disposal strongly suggest that the Province allocate funds to ensure adequate protection and cleanup equipment is available for beaches and biological resources. The proposed Oil Spill Response Fund (Recommendation 6) is a potential source for such expenditures.

Recommendation BC-10: Waste Collection and Disposal

The Province of British Columbia should prepare an up-to-date emergency collection and disposal plan for oily debris and waste generated from a marine oil spill.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment/Washington Department of Ecology

Rationale: The existing marine spill emergency response plan for British Columbia does not incorporate a strategy for oily waste collection, disposal or recycling. Debris generated from an oiled coastline can be considerable, as was evidenced by the Nestucca and Exxon Valdez spills, and require a combination of in situ burning, recycling, off-site incineration or landfill. Due to the potentially significant shoreline impact from a crude oil spill in Washington/B.C. waters identified in Subcommittee findings, the Province should develop a strategy for waste disposal and cooperate with Washington in the development of mutual aid plans for disposal of waste generated from trans-boundary spills.

Recommendation BC-11: Oil Spill Auxiliary Force

The Province of British Columbia should establish and train, in cooperation with the Canadian Coast Guard, a marine oil spill auxiliary to assist in the protection and cleanup of coastal resources.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment, Provincial Emergency Program

Rationale: The recommendation is derived from several in the Anderson Report which discuss the benefits of local knowledge and large numbers of trained response personnel. Subcommittee findings on emergency response and environmental impact indicate that every effort should be made to develop trained and registered auxiliary workers prior to an incident, rather than utilizing volunteers. They indicate that, due to the very widespread impact of crude oil spills within Georgia and Juan de Fuca Straits, the number of cleanup workers required may be considerable and, therefore, a trained and readied group should be available. The auxiliary group should be formed from public interest groups, Native groups, and from local government service agencies. The Ministry of Environment should solicit interest from the public and interest groups and the proceed to initiate a training program.

Recommendation BC-12: Environmental Auditing

The Province of British Columbia should require periodic environmental auditing of provincial purchasing practices. Oil companies which have maintained clean environmental records and have pledged to a set of environmental conservation principles should receive favorable status in the province's purchasing practices.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment, Purchasing Commission

RATIONALE: Spill prevention can be incorporated into a general policy of environmental protection and energy conservation. Preference toward companies with favorable environmental records can provide an economic incentive towards spill prevention and other environmental safety practices. After the Exxon Valdez spill, the National Wildlife Federation (undated) proposed the following ten "Valdez Principles:"

1) Protection of the biosphere from pollutants, habitat loss,and atmospheric changes;
2) sustainable use of natural resources;
3) waste reduction and recycling;
4) wise use of energy;
5) risk reduction and emergency preparedness;
6) marketing of safe products and services;
7) compensation for environmental damage;
8) disclosure of environmental and safety hazards and incidents;
9) integration of environmental officer position into executive management organization;
10) annual self-evaluation of principle implementation.

Corporations which pledge to and comply with these or similar principles could receive preference for provincial transactions.

Recommendation BC-13: Citizen's Advisory Committee

Establish a joint Citizen's Advisory Committee on Spill Prevention and Response reporting to the Task Force member for B.C.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Environment

Rationale: There is strong interest and concern among British Columbians and other Canadians for the protection of coastal resources from the potentially devastating effects of an oil spill. This has been reflected in the public response to both the David Anderson Inquiry and the federally-initiated Brander-Smith Inquiry. A committee appointed by the Premier would serve to advise Task Force members of the public interest respecting oil spill prevention and response. It would also provide technical advice and provide a regular report to the Task Force members on public issues and sensitivities, and serve to monitor the progress of provincial initiatives and Task Force activities in B.C..

Recommendation BC-14: Federal Implementation

The Province of British Columbia should formally request the government of Canada to institute the recommendations made in this Report which fall under Federal jurisdiction.

Authorizing Agent: Provincial Government

Implementing Agent: Office of the Premier, Intergovernmental Relations

Rationale: The Provincial government unlike the other members of the Task Force, does not have control over fisheries, navigation and other marine matters in a 3 mile offshore zone. Some control is exerted by the Province through ownership of the bed of coastal waters, as well as through waste and water legislation. However, such matters as ship safety and design, and navigation are a federal responsibility and must be left to federal initiatives at this time.

Recommendation BC-15: Provincial Legislative Review

The Province of British Columbia should review its existing legislation to ascertain those statutes and regulations which can be used to reinforce federal agency requirements respecting ship safety, marine pollution, and marine contingency plans. Where possible Provincial legislation should be used or strengthened for use to ensure implementation of Task Force recommendations in British Columbia.

Authorizing Agent: Provincial Cabinet

Implementing Agent: Ministry of Attorney General, Ministry of Environment, Ministry of Crown Lands

Rationale: A large number of actions recommended by the Task Force for British Columbia fall within the federal regulatory jurisdiction, as did those of the 1989 David Anderson Report to the Premier on Oil Transportation and Oil Spills. Yet the Provincial government carries primary responsibility for protecting its public resources and the resources and property of its citizens on both shore and on water. The Province does not see the issue of oil transportation to be solely a federal responsibility and must therefore look towards its own legislative tools that will assist in protection of its interests. Some legislation, such as the Waste Management Act, may enable the Province to require contingency plans on tankers and barges, or tug accompaniments. The Land Act, by virtue of its authority over leasing of docks and wharves, may also permit the imposition of various barge loading and unloading requirements. Review of legislation may enable the Province to initiate action that will assist in reducing oil spill risk in B.C. waters without concern for federal pre-emption.

Recommendation BC-16: Tanker Exclusion Zone

The boundaries of the existing voluntary tanker exclusion zone should be formalized following negotiations with Alaska tanker interests to avoid navigational conflicts at the entrance of Juan de Fuca Strait, and to reduce the potential environmental risks of an oil spill. Furthermore, tankers outbound from Vancouver Harbor should also be required to respect this zone.

Authorizing Agent: Federal Government

Implementing Agent: Canadian Coast Guard

Rationale: The existing zone was established in terms of response time for a tug to come to the aid of a disabled vessel. The Coast Guard is now negotiating the boundaries from the perspective of environmental risks and congestion at the entrance of Juan de Fuca Strait. This issue has been raised in the Anderson Report and in the federal government's own internal review. The Coast Guard should be encouraged to continue its efforts to extend the zone.

Recommendation BC-17: Freighters

All freighters entering local ports or waters should be required to have a spill contingency plan and onboard cleanup equipment.

Authorizing Agent: Canadian Federal Governments

Implementing Agent: Canadian/U.S. Coast Guard

Rationale: The Prevention Alternatives Subcommittee findings suggest that the majority of smaller spill occurrences can be expected to be caused by groundings and collisions of large freighter vessels, with large fuel tanks. The risk of this size of spill under 420,000 gallons (1588 m^3) is approximately the same as the risk attributed to spills by oil cargo vessels.

Recommendation BC-18: Tug Escorts

The voluntary actions of industry in British Columbia to provide tankers with tug escorts to transit hazardous waterways under optimum conditions should be mandated by federal legislation.

Authorizing Agent: Federal Government

Implementing Agent: Canadian Coast Guard

Rationale: Rationale for this recommendation is same as for Joint Recommendations 3 and 4. This requirement is consistent with regulations in Washington State.

Washington Recommendations

The creation of the Task Force was prompted by the Nestucca oil spill off of Grays Harbor, Washington on December 22, 1988. However, a number of prior major spills which predated this incident have had a profound impact on spill prevention and response activities in the State. These spills include the Mobil Oil spill on the Columbia River on March 19, 1984. This spill highlighted the lack of response capability for dealing with major spills on the Columbia River; the difficulty in containing spills in fast currents, and the fact that most major spills on that River will have great effect on Washington shorelines regardless of their point of origin. As a result of the ARCO Anchorage spill in Port Angeles on December 21, 1985 (the largest spill in Washington's recent history), a number of changes were made to the Department of Ecology spill response team. The statewide team was brought under one manager to assure flexibility in the deployment of resources and the staffing level was increased. Also, as a result of the ARCO Anchorage, the 49th legislature passed Engrossed House Concurrent Resolution No. 19 which established the Oil Spill Advisory Committee which released its findings in December of 1986. Most of the Committee's recommendations were not implemented due to lack of authority or funding. However, they were thoroughly considered in the development of this report. The current administration and key legislators are committed to the passage of a spill prevention bill during the 1991 legislative session which will implement many of those recommendations which are within state jurisdiction. The MCN #5 Barge spill occurred on January 31, 1988 and highlighted the risk posed from petroleum transport by small companies which are not financially secure.

With this background, Washington has adopted all "joint" recommendations listed in section V.A. above. We would like to place particular emphasis on recommendations which emphasize: energy conservation; the timely requirement of double hulled tankers; and the close coordination between Federal, State (including other Task Force members), Local, Tribal and British Columbia officials during major spills to assure a timely, effective and well coordinated response.

Furthermore, Washington would like to emphasize its commitment to the following action items:

- Identify the highest priority tasks under its jurisdiction.
- Clearly separate administrative actions from recommendations which would require new legislation.
- Proceed immediately to affect new administrative changes.
- Proceed immediately to work with the Washington State Legislature on top priority legislative changes.

Vessel Traffic Management

RECOMMENDATION WA-1: Navigation Conflicts

Initiate local negotiation efforts to eliminate navigation conflicts between fishing fleets and commercial vessels. Upon failure of negotiations, develop United States and Canadian Coast Guard regulations restricting vessel presence or movement in conflict areas.

AUTHORIZING AGENT: State Legislative Branch/U.S. Coast Guard

IMPLEMENTING AGENT: State/Provincial transportation agencies/U.S and Canadian Coast Guards

RATIONALE: Traffic conflicts between ferries, commercial vessels, and fishing boats increase the risk of oil spills. For example, the Washington State Department of Fisheries management area Zone 10 borders the Kingston-Edmonds ferry lane. When this zone is open for fishing, vessels are permitted to set nets directly in the ferry lane, but must retrieve nets 15 minutes before arrival of ferries or other deep draft vessels. The Coast Guard established Temporary Safety Traffic Lanes (TSTL) 14 times during the 1989 commercial fishing season in order to relieve congestion in this zone. Approximately 105 of the 140 citations issued by the Coast Guard during TSTL operation in Puget Sound were to fishermen working in the ferry lanes (Puget Sound Water Quality Authority, 1990). Similar problems exist on the Columbia River. Through a negotiation process, traffic lane users can develop a formal agreement which improves maritime safety. The alternative of Coast Guard rule-making could provide an incentive for reaching a successful resolution.

Personnel

RECOMMENDATION WA-2: Pilot Qualifications

Ensure that state pilot qualifications adequately require alcohol and drug testing, spill prevention training, and disciplinary action. Add an environmental representative to the State Pilotage Board. Legislatively pursue Washington pilot qualification requirements for pilots navigating on Washington's side of the Columbia River.

AUTHORIZING AGENT: Washington legislature

IMPLEMENTING AGENT: Washington Pilotage Commission

RATIONALE: The Washington Pilotage Act specifies state pilot qualifications and license requirements. The Board of Pilotage Commissioners has the option to license an individual pilot without requiring bridge-simulator training (Puget Sound Water Quality Authority, 1990). Computer training provides pilots with an opportunity to develop and refine navigation skills under simulated emergency conditions. No simulators training centers exist on the west coast (AOSC, 1990). Safe pilotage can also be promoted through drug and alcohol testing and mandatory spill prevention training. Washington State Marine pilots currently are exempt under state law from disciplinary action by the U.S.C.G., which removes an incentive for maritime safety. Finally, qualification requirements for Washington pilots on the Columbia currently rest under the jurisdiction of Oregon regulations. Doubts have been cast on the stringency of these regulations, and their effectiveness in spill prevention.

Regulatory Oversight

RECOMMENDATION WA-3: Subtidal Land Leases

Use Department of Natural Resources dock facility subtidal land leases as an additional authority under proprietary law to compel compliance with State oil pollution laws and regulations.

AUTHORIZING AGENT: Washington Departments of Ecology and Natural Resources

IMPLEMENTING AGENT: Washington Departments of Ecology and Natural Resources

RATIONALE: When subtidal land leases are negotiated and renewed, Ecology will coordinate with the Department of Natural Resources to assure contingency plan and other compliance issues are satisfactorily resolved for those facilities associated with petroleum product transfer. As a major land owner, the State of Washington should expect its tenants to comply with State laws.

RECOMMENDATION WA-4: Federal Consistency

Ensure that the revised state contingency plan provisions are consistent to the maximum extent possible with related federal requirements and allow for more stringent state requirements as appropriate.

AUTHORIZING AGENT: Washington Department of Ecology

IMPLEMENTING AGENT: Washington Department of Ecology

RATIONALE: Consistency with federal contingency plan requirements will improve coordination between state and federal spill planning and response efforts, and simplify the planning process for industry.

Response Enhancement

RECOMMENDATION WA-5: State Agencies

Ensure that respective roles and responsibilities during spills are clearly understood and carried out in accordance with the Revised State Contingency Plan through a Memorandum of Understanding which endorses the following operating policies:

> **Department of Ecology: Acts as the single state-wide on-scene coordinator for all spill incidents, and serves as primary representative with USCG. The State Incident Command System (ICS) will be incorporated into spill response procedures per Joint Recommendation 39. Act as the State's representative to the Federal Regional Response Team and continue to act in concert with the U.S. Coast Guard in managing major spills from a joint command center.**
>
> **Division of Emergency Management (DEM): Assists natural resource agencies in developing procedures for: 1) registering volunteers; and 2) ensuring state liability is covered. Support Ecology in command post operations.**
>
> **Department of Wildlife: Assumes responsibility for bird rescue/wildlife rehabilitation efforts, including training and management of volunteers.**
>
> **Department of Natural Resources: Make available non-fire season aircraft, communication centers, food services, etc. as appropriate in the event of a major spill. Serve as the state focal point for digitized environmental data bases and graphic display capability for environmental mapping (i.e. GIS). Develop a joint training program with Ecology and DEM for incident commanders.**

AUTHORIZING AGENT: Memorandum of Understanding

IMPLEMENTING AGENT: Departments of Ecology, Emergency Management, Wildlife, and Natural Resources

RATIONALE: A framework for coordinated spill response efforts must be in place before a spill occurs, to be effective (AOSC, 1990). Washington emergency response and natural resource agencies can establish this framework through a memorandum of understanding.

Fees and Incentives

RECOMMENDATION WA-6: Barrel Tax

Impose a per barrel tax on crude oil imports, and apply revenues to establish a fund for state spill prevention and response efforts.

AUTHORIZING AGENT: Washington Legislature

IMPLEMENTING AGENT: Washington Office of Financial Management

RATIONALE: As an example, based on current estimates of crude petroleum imports, a $0.17 per barrel ($0.004 per gallon) excise tax would raise approximately $25 million in revenues. This money could be used to fund items such as:

- Ecology's spill prevention/contingency plan review program
- education programs for small boaters/fishermen/marinas
- development of a citizens' oversight committee on spills
- state spill response cleanup operations
- local hazardous waste management
- a spill prevention research center

Some of the above activities receive funding from the state toxics account. Others would be difficult to implement at all without a new source of funding. A portion of revenues from a marine fuels tax proposed by the Puget Sound Water Quality Authority might serve as an alternative.

RECOMMENDATION WA-7: Economic Incentives

Provide economic incentives for voluntary industry prevention practices which go beyond regulatory requirements.

AUTHORIZING AGENT: Washington State Legislature

IMPLEMENTING AGENT: State Office of Financial Management; Ecology

RATIONALE: Washington State does not have authority to regulate certain marine transportation factors, such as ship design. Without federal requirements, industry may not pursue some spill prevention strategies because of high costs. However, Washington can provide economic incentives to industries which implement voluntary spill prevention and response strategies. For example, the state of Washington could reduce or eliminate tax liability under the proposed barrel tax (see Washington Individual Recommendation 6) for corporations which voluntarily meet specified tank vessel criteria.

RECOMMENDATION WA-8: Environmental Auditing

Require periodic environmental auditing of state/provincial purchasing and investment practices. Oil companies which have maintained clean environmental records and have pledged to a set of environmental conservation principles should receive favorable status in the states purchasing and investment practices.

AUTHORIZING AGENT: Washington State Legislature

IMPLEMENTING AGENT: Office of Financial Management

RATIONALE: Spill prevention can be incorporated into a general policy of environmental protection and energy conservation. Preference toward companies with favorable environmental records can provide an economic incentive towards spill prevention and other environmental safety practices. After the Exxon Valdez spill, the National Wildlife Federation proposed the following ten "Valdez Principles (undated):"

1) Protection of the biosphere from pollutants, habitat loss, and atmospheric changes;
2) sustainable use of natural resources;
3) waste reduction and recycling;
4) wise use of energy;
5) risk reduction and emergency preparedness;
6) marketing of safe products and services;
7) compensation for environmental damage;
8) disclosure of environmental and safety hazards and incidents;
9) integration of environmental officer position into executive management organization;
10) annual self-evaluation of principle implementation.

Corporations which pledge to and comply with these or similar principles could receive preference for state transactions.

Vessel Traffic Management

RECOMMENDATION WA-9: Harbor Safety Committees

Create harbor safety committees for Washington waters. Committees would prepare harbor safety plans and develop mechanisms to ensure compliance.

Authorizing Agent: State Legislature

Implementing Agent: State Agency to be identified/Harbor Safety Committees

Rationale: Individual harbors and bays have distinct characteristics which may necessitate certain safety precautions to prevent accidental oil spills. Persons involved with these harbors on a day to day basis, such as the local Ports, Coast Guards, pilot's organizations, tanker operators, ship owners, commercial fishermen, and interested local citizens and pleasure boat owners, are uniquely qualified to determine the special needs of each harbor and bay. These committees would be charged with preparing a harbor safety plan, encompassing all vessel traffic within the harbor in accordance with regulations and guidelines developed by the Department of Ecology or other designated state agency. After certification by the Department, the plans would be implemented through the development of regulations, requests for necessary state legislation and/or other means. The committees would also be an appropriate way to implement some of the joint Task Force recommendations.

Alaska Recommendation

Spill Response Enhancement

RECOMMENDATION AK-1: MSRC Response Center

Continue to take measures to encourage MSRC to establish a response center in Alaska that does not rely on existing Alaska response equipment.

AUTHORIZING AGENT: Alaska legislative and executive branches

IMPLEMENTING AGENT: Alaska legislative and executive branches

RATIONALE: MSRC was formed to provide response capability for major offshore spills that exceed the capability of local industry. Nowhere in the United States are there more resources at risk or a greater likelihood of a major offshore spill than in coastal Alaska. With the possible exception of Prince William Sound, a major offshore spill in the state would be far beyond the present capability of industry. Tremendous logistical difficulties exist in transporting response personnel and equipment to remote locations in Alaska. Placement of a MSRC in Alaska central to areas of extreme risk will be a step towards minimizing these logistical difficulties and avoiding possible severe environmental damage.

Oregon Recommendations

Vessel Traffic Management

RECOMMENDATION OR-1: Navigation Conflicts

Initiate efforts to reduce navigation conflicts on the Columbia River. Institute a campaign to educate the public on the dangers involved in impeding commercial traffic. Develop regulations which require tugs to either make up to barges or have a tail boat secured rather than towing the barges.

AUTHORIZING AGENT: Oregon State Legislature

IMPLEMENTING AGENT: Board of Maritime Pilots/Dept. of Environmental Quality

RATIONALE: Traffic conflicts on the Columbia River increase the risk of oil spills. Towed barges are a particular hazard to other commercial traffic. Rules need to be developed to assure that towed barges are kept under complete control at all times. Significant traffic problems exist at the mouth of the Columbia River and in the Portland Harbor during the sports fishing season. An active program to educate the public about the hazards could help alleviate conflicts between recreational and commercial traffic.

Personnel

RECOMMENDATION OR-2: Pilot Qualifications

Upgrade Oregon pilot license requirements to meet the Columbia River Pilots program. Qualification for an Oregon license should include the following elements: require simulator training and practical exams, require alcohol and drug testing, require spill prevention training, repeal pilot exemption from disciplinary actions under Coast Guard casualty investigations, and match Washington pilot qualification requirements for pilots navigating on Washington's side of the Columbia River.

AUTHORIZING AGENT: Oregon State Legislature

IMPLEMENTING AGENT: Board of Maritime Pilots

RATIONALE: The Board of Maritime Pilots should adopt the Columbia River Pilots program. In addition, computer training provides pilots with an opportunity to develop and refine navigation skills under simulated emergency conditions. No simulators training centers exist on the west coast (AOSC, 1990). Safe pilotage can also be promoted through drug and alcohol testing and mandatory spill prevention training.

RECOMMENDATION OR-3: Planning Consistency

State contingency plans developed under new planning mandates should be consistent with existing local, state, regional, and federal spill contingency plans to ensure coordinated responses that utilize scarce government resources in the most efficient manner.

AUTHORIZING AGENT: Oregon Department of Environmental Quality

IMPLEMENTING AGENT: Oregon Department of Environmental Quality

RATIONALE: Consistent planning efforts are an essential part of developing as functional system. Past experience has repeatedly shown the negative consequences of poor coordination. Funding would be covered under SB 1039.

RECOMMENDATION OR-4: Resource Protection

Ensure that new oil spill planning mandates provide the maximum protection to Oregon's natural resources to include development of strategies and rules to asses natural resource damages, rehabilitate oiled wildlife, dispose of oiled debris, manage volunteers, and use dispersants effectively.

AUTHORIZING AGENT: Oregon Department of Environmental Quality

IMPLEMENTING AGENT: Oregon Department of Environmental Quality

RATIONALE: As a result of the Exxon Valdez incident, protecting Oregon's natural resources has been given high priority by the citizens of the state and the State Legislature. Oregon presently has no comprehensive strategy for the issues listed above. Without such strategies, the response system is incomplete. Funding would be covered under SB 1039.

RECOMMENDATION OR-5: Facility Contingency Plans

Ensure that new legislation is passed to require all facilities transporting or storing bulk petroleum products to have a spill prevention and contingency plans that are approved by the state which are exercised and updated on an annual basis.

AUTHORIZING AGENT: The State Legislature

IMPLEMENTING AGENT: Oregon Department of Environmental Quality

RATIONALE: Facilities in Oregon are presently not required to have contingency plans. Experience has shown that pre-planning by industry can significantly decrease the risk of spills and improve response performance.

RECOMMENDATION OR-6: Legislative Evaluation

Existing legislation needs to be evaluated and, if necessary, strengthened or augmented to ensure that the recommendations made by the Task Force will be implemented in the State of Oregon.

AUTHORIZING AGENT: Oregon State Legislature

IMPLEMENTING AGENT: Oregon Department of Environmental Quality

RATIONALE: The State of Oregon must be dedicated to oil spill prevention as a policy. The recommendations made by the B.C./States Task Force are a major step in improving oil spill prevention and response capabilities on an interstate scale on the West Coast. Strengthening legislation and toughening standards will ensure that these recommendations are implemented and enforced in Oregon.

RECOMMENDATION OR-7: Enhance interstate coordination

Enhance interstate coordination on oil spill prevention and response planning.

AUTHORIZING AGENT: Oregon State Legislature

IMPLEMENTING AGENT: Oregon Department of Environmental Quality

RATIONALE: One of the key accomplishments of the B.C./Task Force has been the implementation of interstate coordination in oil spill prevention planning on the West Coast. Oregon would greatly benefit by continuing to coordinate with other West Coast states for information and resource sharing. Funds have been applied for under Section 309 of Coastal Zone Management Act.

RECOMMENDATION OR-8: Spill equipment inventory

Increase the inventory of oil spill cleanup equipment located throughout the state and set up equipment depots in strategic locations.

AUTHORIZING AGENT: Oregon State Legislature/Marine Spill Response Corporation/Clean Rivers Cooperative

IMPLEMENTING AGENT: Oregon Department of Environmental Quality/Marine Spill Response Corporation/Clean Rivers Cooperative

RATIONALE: Most spill response equipment is located in Portland, hours away from any of the most critical areas of the state. Estimates suggest that existing equipment could handle a medium sized spill. The lessons of the Exxon Valdez show that we need to be prepared for much more, including the establishment of equipment depots at strategic locations.

RECOMMENDATION OR-9: Permanent Funding Source

A permanent funding source must be found for Oregon's oil spill prevention planning and response program.

AUTHORIZATION: Oregon State Legislature

IMPLEMENTING AGENT: Oregon State Legislature

RATIONALE: Oregon's existing spill planning program is funded until July 1, 1990. A permanent source of funds must be found to: 1) allow existing efforts to continue so that plans can be implemented, exercised and updated on a continuous basis; 2) enhance existing spill response capabilities; and 3) provide for implementation of the new initiatives identified in this report.

RECOMMENDATION OR-11 Harbor Safety Committees

Create harbor safety committees for the ports of Coos Bay, Yaquina Bay, Astoria, and Portland. Committees would prepare harbor safety plans and develop mechanisms to ensure compliance.

AUTHORIZING AGENT: Oregon State Legislature

IMPLEMENTING AGENT: to be identified

RATIONALE: The Ports of Coos Bay, Yaquina Bay, Astoria, and Portland have distinct characteristics which may necessitate certain safety precautions to prevent accidental oil spills. Persons with special knowledge of an individual harbor would be asked to sit on a committee and would be charged with preparing a harbor safety plan for all vessel traffic within that harbor.

California Recommendations

The following recommendations, which appeared in the Draft Report, have been implemented in legislation which was signed into law by Governor Deukmejian on September 22, 1990. This new law is explained in more detail under "Recent Individual Member Initiatives."

Recommendation CA-1: **Establish an office within the Department of Fish and Game that would be responsible for implementing the duties of the department relating to oil spill response and cleanup, including dispersant use, facility inspection, oil spill drills, and to conduct studies and evaluations to improve oil spill response.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Fish and Game

Rationale: Although California currently has a comprehensive set of laws concerning the discharge of oil into the State's waters, the responsibility for implementing such laws is disbursed into several different departments. While not changing any agency's statutory authority, creating an office within the Department of Fish and Game to oversee the implementation of oil spill prevention programs would ensure that the State's programs were coordinated and the Department would have the knowledge and resources necessary to adequately perform its role as the State's On Scene Coordinator during a spill.

Recommendation CA-2: **Create port/harbor safety committees for the harbors of San Diego, Los Angeles/Long Beach, Port Hueneme, and for the bays of San Francisco/San Pablo/Suisun and Humboldt. Each port/harbor safety plan prepared by the committees shall include the following minimum requirements: tug boat escorts, unless they are specifically found not to be beneficial; a review of anchorage designations and sounding checks, communication systems, small vessel congestion in shipping channels, and placement and emergencies; bridge management requirements; and mechanisms to ensure the harbor safety plan is regularly enforced.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Fish and Game and Port/Harbor Safety Committees

Rationale: Individual harbors and bays have distinct characteristics which may necessitate certain safety precautions to prevent accidental oil spills. Persons involved with these harbors on a day to day basis, such as the port authorities, Coast Guard, pilots organizations, tanker operators, ship owners, commercial fishermen, and pleasure boat owners, are uniquely qualified to determine the special needs of each harbor and bay. These committees would be charged with preparing a harbor safety plan, encompassing all vessel traffic within the harbor in accordance with regulations and guidelines developed by the Department of Fish and Game. After certification by the Department, the plans would be implemented through the development of regulations or requests for necessary state legislation.

Recommendation CA-3: **Require the establishment of the State Interagency Oil Spill Committee in State law. As one of its duties, the Committee should aid the Department of Fish and Game in updating the State Oil Spill Plan and programs or regulations for the prevention of oil spills are necessary. Such recommendations should be reported to the Governor and Legislature no later than January 1, 1992.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Fish and Game

Rationale: Although not mandated by State law, a State Interagency Oil Spill Committee (SIOSC) previously existed as part of the implementation of the State's Oil Spill Contingency Plan. Implementation of the State's Plan has shown the importance for such a committee of State agencies which have special knowledge and duties during the response to an oil spill. Rather than operating on the current voluntary basis, it is important to ensure that specified agencies be active players and have representation by those authorized to make policy decisions for their departments. An added reason to establish SIOSC in statute is to allow for continuous representation on the Committee by State agencies and provide training to SIOSC members so that they can effectively respond to an oil spill emergency. Review of current regulations is important to ensure that they reflect up to date technical information and any changes currently being considered by the federal government, particularly the U.S. Coast Guard.

Recommendation CA-4: **Create response and prevention funds through a per barrel fee assessed on oil. A borrowing authority for additional funds should also be established to cover any unmet financial needs in the aftermath of a spill.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Finance

Rationale: In order to protect the State from the need to expend general funds to respond to an emergency oil spill where other funding sources are not immediately available, creation of a special account solely for the purposes to respond to a spill is necessary. Monies for the administration of programs related to oil spill prevention and response should be set by the Governor and Legislature through normal budgetary procedures. Costs would depend on the size of the fund and the number of years taken to establish it at the authorized amount.

Recommendation CA-5: **Require any person who annually imports, produces, or otherwise handles more that 420,000 gallons (1,588 m^3) of oil over, in, or under the State's marine waters to prepare an oil spill prevention and response contingency plan to be certified by the Department of Fish and Game. In addition, certification of a plan will require proof that the necessary response equipment and financial ability to respond to damages from a reasonable worst case spill exists.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Fish and Game

Rationale: Emergency contingency plans are currently required of certain facilities depending upon which agencies must approve their operation (see Health and Safety Code § 25270.5 (c) and Government Code § 8574.6 (c). This requirement would ensure that any party handling a large amount of oil within State waters has an up-to-date prevention and response plan which meets requirements to be adopted by the Department of Fish and Game in consultation with the State Interagency Oil Spill Committee. Contingency plans submitted pursuant to this requirement will also be consistent with the State Oil Spill Contingency Plan and ensure a comprehensive response to any spill in State waters. To encourage support of oil spill response cooperatives so that they may retain inventories of equipment and develop expertise in the region, proof of membership in such a cooperative will provide the proof that an operator has the necessary equipment available. Proof of financial responsibility, to ensure that State funds are not depleted to respond to a spill, may be met by obtaining insurance or a bond payable to the State in the amount of $500 million. In addition, while a spiller remains liable for the total damages caused by a spill as the responsible party, a form of limited liability or "good samaritan" provision should be provided for response organizations which are entities distinct from the responsible party, except for circumstances of willful or gross negligence in cleanup activities.

Recommendation CA-6: **Require the Department of Fish and Game and the Office of Emergency Services to develop guidelines for training individuals and agencies in oil spill response operations including cleanup strategies, equipment deployment, and wildlife collection and rehabilitation.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Fish and Game, Office of Emergency Services

Rationale: The State currently does not certify or oversee training programs specifically for response to oil spills. The use of certified training programs helps to ensure that consistent training techniques and information is given to all individuals who receive training from the State or industry. In the response to the American Trader spill in Huntington Beach, already trained State employees, industry personnel, and volunteers would have added greatly to the response effort. In particular, the use of the California Conservation Corps should be encouraged and the Department of Fish and Game should work with the Corps to ensure that its members are trained to respond safely to oil spills.

Recommendation CA-7: **Require the Department of Fish and Game to evaluate all pilotage areas in the State concerning the effectiveness of the pilot licensing program, the procedures for investigating pilot incidents, and the desirability of applying a surcharge for pilotage to provide expanded pilot training.**

Authorizing Agent: Governor & State Legislature

Implementing Agent: Department of Fish and Game

Rationale: When a vessel enters or leaves a port, many ports require a local pilot with knowledge of the area to be on board. Use of pilots is a useful measure to reduce the likelihood of a grounding or collision in a busy port area. To ensure that such requirements remain useful, the State should review its licensing program for pilots to see if any improvements to this system are necessary.

VI. Implementation Strategy

The Task Force will make every effort to assure the full implementation of the recommendations adopted in the final report. The Task Force developed this strategy to help implement the joint recommendations. Recommendations developed by the individual members will be the subject of separate action plans.

1. **Recommendations to state/provincial legislative bodies.**

   Within **90 days** of the final report's release, **or within a time period appropriate to the next legislative session**, whichever is longer, **each member** will submit the recommendations, which are identified as having a legislative "authorizing agent" in the report, to their appropriate legislative committees for action. Where an individual member has previously submitted a recommendation, duplication will be avoided.

   For recommendations where **British Columbia** statutory authority yields to the federal government, a letter forwarding the recommendations will be drafted for the Premier's signature and sent to Parliament.

2. **Recommendations to the U.S. Western Legislative Conference**

   Within **90 days** of the final report's release, **Washington** will review drafts of a proposed interstate compact agreement prepared by the Western Legislative Conference (WLC) and submit comments in consultation with other Task Force members. Also within this timeline, the Task Force will determine the options and procedures available to include British Columbia in such a compact. The Task Force will work cooperatively with the WLC to pursue its adoption by the respective legislatures and if appropriate, Congress.

   Note: the WLC is a group of U.S. legislators from the western states that works to resolve issues of mutual interest, particularly in the federal arena. A legal definition and analysis of interstate compacts is available in the 1990 report of the Alaska Oil Spill Commission.

3. **Joint letter by governors to U.S. Congress and the President; and by B.C. Premier to Prime Minister.**

   Within **60 days** of the release of the final report, **California** will draft specific language for a joint letter (to be signed by the four governors) to Congress and the President on those Task Force recommendations with federal jurisdiction. **British Columbia** will submit a similar letter, signed by the Premier, to Parliament and the Prime Minister.

4. **Recommendations to the Canadian and United States Coast Guards.**

   Within **60 days** of the release of the final report, **Oregon** will draft specific language for a letter (jointly signed by the Task Force members) transmitting recommendations to the heads of the Canadian and U.S. Coast Guards. A copy of the recommendations also will be sent to the heads of the affected Coast Guard districts.

5. **State/provincial agency action.**

Within **60 days** of the release of the final report, **each Task Force member**, in their respective executive management roles within state/provincial environmental agencies, will take positive action to assure that those recommendations which can be implemented within existing state/provincial statutory authority and budgets receive action wherever possible.

6. **Future Task Force activities.**

In subsequent Task Force meetings and through staff activities, members will implement those recommendations which direct the Task Force to pursue new activities.

VII. Recent Individual Member Initiatives

In addition to Task Force meetings, joint reports, and other cooperative accomplishments, Alaska, British Columbia, Washington, Oregon, and California have been working on independent spill-related legislation, plans, and other projects. The following reports describe individual spill prevention and response activities by each of the Task Force members.

A. WASHINGTON

The Exxon Valdez oil spill in March of 1989 and the Nestucca spill off the Washington coast three months earlier focused considerable attention on the state's ability to prevent and respond to major oil spills. The Department of Ecology and other Washington State agencies have participated in the following activities since the formation of the Task Force and the occurrence of these major oil spills.

1989 Legislative Session

Ocean Resources Management Act (RCW 88.40.020). The state legislature passed the Ocean Resources Management Act in May 1989, which went into effect in August. Sections 1 through 7 of the act require that vessels over 300 gross tons which carry oil as cargo demonstrate financial responsibility to the state for oil spill cleanup, natural resource damages, and civil penalties.

The act requires minimum liability insurance of $1 million, or $150 per gross ton, whichever is greater. Coverage can include insurance, surety bonds, self-insurance, and other means approved by Ecology. Documentation of coverage must be filed with Ecology and kept on-board the vessel.

The penalties for noncompliance are a maximum fine of $10,000 and suspension of the privilege to operate in Washington's waters.

Resource Damage Act The 1989 Resource Damage Act (SHB 1853) directs Ecology to adopt an oil spill compensation schedule of up to $50 per gallon on spilled oil to compensate the state for natural resource damages that are unquantifiable or very difficult to quantify at reasonable cost.

1990 Legislative Session

Oil and Hazardous Substance Spills Act During the 1990 Legislative Session, the Oil and Hazardous Substance Spills Act (SSHB 2494) was passed. This statute requires all major shippers and handlers of oil to develop state-approved contingency plans. The legislation included a $996,000 appropriation from the State Toxics Control Account to help Ecology carry out the requirements of the law during the next two years.

Ecology recently initiated work on the state oil spill contingency plan and the rule development process for carrying out the act. Ecology has an extensive public involvement process and will work closely with the affected industries, cleanup contractors, federal officials, state agencies, local governments, tribes, environmental organizations and the general public.

1991 Legislative Session

The 1991 session will most likely continue to focus on oil spill issues. Several legislators and the administration Governor are committed to the introduction of legislation which will focus on spill prevention. Many of the potential legislative issues are identified in the Task Force's recommendations.

Federal Legislation

Ecology has worked through the National Governors Association and Washington's Federal Congressional delegation to resolve the two key remaining issues: ensuring that limitation of liability does not inhibit the State's right to recover costs and damages, and implementation of international protocols only if they do not limit the ability of states to recover damages. Ecology will continue to work with State and Federal legislators to enact comprehensive and responsible oil spill prevention and response bills, and ensure consistency between Federal and State legislation.

State Contingency Plan Review and Revision

The state of Washington is continuing to revise its contingency plan to more accurately explain the roles and responsibilities of Ecology spill responders. The plan will be consistent with local, regional and federal plans.

Nestucca Barge Spill

The state completed a final report on the 231,000 gallon (873 m^3) oil spill. The report assessed the state's response and presented recommendations for improvements. Major recommendations include better definition of roles among state and federal agencies, development of a volunteer management policy, and revision of the State's Contingency Plan.

Ecology is continuing to work with the Department of Wildlife to develop policies for bird rescue and rehabilitation. Major parts of these policies will be state trustee roles and protocols for the setting up of bird rescue and rehabilitation centers. Ecology is also continuing to work with the Department of Community Development's, Division of Emergency Management to develop an effective volunteer management policy which address liability and other concerns. The Nestucca case is still under litigation.

Regional Response Team Activities

The State of Washington through the Department of Ecology is an active participant in the Region 10 Regional Response Team (RRT) co-chaired by the Environmental Protection Agency and the US Coast Guard. The RRT has four subcommittees through which the routine business of the RRT is conducted. During major spills, Ecology and the Federal On-Scene Coordinator (OSC) share a joint command post. During the spring of 1990 all of the Federal and State spill response agencies participated in a major oil spill drill. Another drill is currently being planned for the spring of 1991.

Puget Sound Water Quality Authority

A final issue paper entitled Spill prevention: means of preventing spills of petroleum and other hazardous substances in Puget Sound has been submitted to the States/B.C. Task Force. It contains a comprehensive listing of spill prevention issues and recommendations. Many of these recommendations have been adopted as spill prevention program elements in the 1991 draft PSWQA plan, which will be finalized in late 1990. In addition to directing local and state programs which affect Puget Sound water quality, the 1991 plan will also serve as the federal Comprehensive Conservation and Management Plan under the Puget Sound Estuary Program. It also should be noted that Puget Sound Water Quality Authority staff provided considerable assistance to Ecology in the preparation of this report.

Ecology's Washington Conservation Corps (WCC)

Washington Conservation Corps members have completed a training session on bird cleaning techniques. The Environment Youth Corps of British Columbia was included in this training. The WCC was very valuable in bird and beach cleanup during the Nestucca spill, and the training will provide a skilled work force to assist in future spills.

Dispersant Policy

Developing a policy on dispersants was originally part of the Task Force work plan, but was deferred to the Federal Regional Response Team (RRT). Ecology is a member of the Region 10 RRT and is involved in the policy development. The State has obtained agreement from all of Washington's natural resource agencies that dispersants may be used as an effective tool in response to major spills, when appropriate conditions are placed on their use. Guidance is currently under development in conjunction with an Environmental Impact Statement under the State Environmental Policy Act, with Ecology as the lead agency. Copies of the final EIS will be available from Ecology.

Other Activities

During the fiscal 1991 year Ecology is planning to conduct four drills of its spill response capability. The purpose of the drills is to ensure a continuing vigilance and readiness. To further this aim, Ecology has placed a major focus on the training and equipping its spill responders since July 1989.

B. BRITISH COLUMBIA

A number of important marine oil spill activities have been initiated by the Province of British Columbia since the formation of the Task Force. These initiatives have generally been taken with the federal government agencies and with industry representatives and are primarily focused on improved spill preparedness and response.

Nestucca spill

During the Nestucca spill a federal/provincial team initiated a number of projects and activities to assess and monitor the spill's environmental impacts. A report on the preliminary evaluation of impacts was released which described the results of these preliminary activities. Subsequent monitoring and evaluation have resulted in the publication of additional reports on seabirds in the affected area as well as a comprehensive review entitled "The Nestucca Oil Spill: Fate and Effects to May 31, 1989" by Environment Canada. These publications are listed in Attachment II of the Task Force Report. These studies are being used to support the damage claims of the Province and the Government of Canada against the spiller in the Oregon Courts, and are being supplemented by a study to determine the "non-consumptive use" of coastal wildlife to British Columbians.

Drift block experiment

Another initiative stimulated by the Nestucca spill was a joint Ministry of Environment/University of Victoria drift block experiment, in which a large number of painted blocks were released off the West coast of Vancouver Island in January and February of 1990. The drift patterns and recovery success of these blocks were analyzed to provide a better information base for assessment of oiled seabird mortalities during a west coast oil spill (see Attachment II).

David Anderson report to the Premier

A more direct result of the Nestucca spill was the appointment of David Anderson as the special advisor on oil spills to the Premier of British Columbia. Based on public hearings, interviews and correspondence, Mr. Anderson submitted a November, 1989 report containing 184 multi-jurisdictional recommendations on oil transportation and oil spills. The report dealt with prevention of spills by reducing consumption, recycling oil products, reducing tanker traffic, and improving ship safety. It also addressed spill response and preparedness by a variety of measures, such as improved co-operation among response agencies, a sensitivity mapping program and equipment stockpiles. It also addressed the issue of improved oil spill compensation and insurance. An evaluation of recommendations and preparation of implementation measures is currently being carried out by a multi-agency committee of the Provincial government. Several of the Anderson recommendations are being implemented at this time. The report has been very influential in the activities of both the Task Force member states and in the deliberations of a subsequent Canadian Federal Government Inquiry into oil transportation, chaired by Mr. David Brander-Smith.

Marine oil spill contingency plan

Since the formation of the Task Force, British Columbia has also developed a comprehensive marine oil spill contingency plan. A plan developed by consultants has been merged with the existing emergency response manual of the Ministry of Environment to create an up to date guide for action in the event of a major marine spill. British Columbia has also utilized an incident command system to establish three marine spill response teams, responsible for Vancouver Island, the north B.C. coast, and the south mainland coast.

Equipment list

To assist its response teams, the Province has developed a comprehensive list of equipment required for beach cleanup purposes. The south mainland response team now has at its disposal a base supply of equipment suitable for the first 72 hours of spill response. Equipment orders have been placed for the north coast and Vancouver Island response teams to ensure they are adequately equipped for a spill.

Spill response training

The Province has also been actively involved in spill response training. The Ministry of Environment sponsored a workshop in May, 1990 to train response team members in beach cleanup strategies and techniques. The Ministry's Vancouver Island response team participated in a joint U.S.-Canada Coast Guard spill exercise in Seattle in February, in both planning and response components. The Province has also encouraged staff and experts at large to gain additional knowledge on spill response issues by sponsoring attendance at a number of oil spill related workshops and conferences.

Coastal data sources library

British Columbia has also commenced action to further improve response planning and protection of shorelines through development of coastal sensitivity atlases, coastal zone videotapes, a reference library of coastal data sources, and "experience" directories of oil spill experts and resource scientists. To date, an oil spill response atlas is being developed for southwest Vancouver Island, which identifies resources at risk from an oil spill and various countermeasures and cleanup techniques recommended in the event of a spill. Other atlases are being contemplated for high risk areas such as southern Georgia Strait and the Queen Charlotte Islands.

The coastal videotapes contain records of pre-oiled beach conditions at low tide, as well as an indication of effective countermeasures and cleanup techniques. These are required for the training of response team member as well as for legal documentation purposes. Videos have been completed for the high risk area of southern Georgia Strait and southwest Vancouver Island.

Both the oil spill experts directory and the coastal data reference list have been completed for southern Georgia Strait in electronic form and are available to spill response teams in need of specialized information and assistance.

A major long-term goal of the Ministry of Environment is the extension of information coverage to the remainder of the British Columbia coastline and computerization of the oil spill response information system to provide for immediate on-scene access and manipulation. The Ministry has completed a comprehensive feasibility and requirements analysis report which outlines the business needs, benefits, and costs of an electronic system. Provided that funds are available, a system design study will be undertaken to establish the specific hardware and software details of the electronic coastal resources information system.

In the general area of contingency planning, the Ministry of Environment has created a new focus on contingency plans by industries that store or tranship petroleum products. A consultant study prepared for the Ministry has recommended standards for oil spill contingency plans which are being evaluated against existing plans. Through co-operation with industry associations, effective process for establishing and auditing of industry plans is now being developed.

Finally, the Ministry of Environment has undertaken a recent internal reorganization to establish a specific Branch dedicated to planning, preparedness and response mobilization for marine oil spills and other environmental emergencies. This Branch has begun the task of increasing liaison and co-operation with other state, provincial, federal and local government agencies, as well as with the public and industry in activities for prevention, protection and response to a marine oil spill.

An important indirect effect of these British Columbia initiatives has been an increased commitment by industry to enhance spill response and protection measures. Trans Mountain Pipe Line Company Ltd. and Imperial Oil Limited have adopted the practice of requiring tug escorts for tankers between Vancouver Harbor and Victoria. Two local pilots are also required to accompany the tankers. They have initiated the practice of inspecting tankers that will be loaded at Trans Mountain's Westridge terminal in Vancouver, and have hired a safety inspector/ship surveyor to accompany chartered tankers on their passage from Victoria into Vancouver Harbor. Tankers are also now instructed to transit Haro Strait and Boundary Passage at slack tide only, to reduce the likelihood of groundings.

Industry has also begun the process of expanding its oil containment capabilities through the Burrard Clean Co-operative, which has purchased additional skimmers and booms to serve Victoria and Vancouver Harbors.

C. ALASKA

State of Alaska Initiatives

The State of Alaska has seen two very active legislative sessions (1989 and 1990) in response to the Exxon Valdez oil spill. Several major, revisions have been made to the Department of Environmental Conservation (DEC) approach to spill prevention and response by the passage of new laws.

1989 Legislative Session

Senate Bill 261 - State and Regional Contingency Planning

This bill required the Department of Environmental Conservation to prepare and annually review and revise master State and Regional Oil and Hazardous Substance Discharge Prevention and Contingency

Plans. The State plan and three of nine regional plans are scheduled for completion in December 1990. While there was a State contingency plan developed in 1983, these new plans will more fully detail how all the state agencies that play a major role in spill response will work with each other, the federal agencies, the local government, and the spiller.

House Bill 68 - Liability for Hazardous Substance Releases

This Governor's bill established standards for liability for hazardous substance (including oil) releases under state law that are comparable to those available under federal law (CERCLA). It explicitly makes those who manage oil or hazardous substances liable for releases. Key provisions include those who "arrange" for disposal or treatment. The bill also allows the State to file a lien against the assets of a party who declares bankruptcy but who owes the State for cleanup costs.

Senate Bill 260 - Conservation Surcharge on Oil

This legislation imposed a $.05 surcharge on each barrel of crude oil produced in the state of Alaska. This raises about $32 million per year, at least for the first two years. The funds are to be appropriated to the Oil and Hazardous Substance Release Response Fund. If the Legislature fails to appropriate the monies to the Fund, then the surcharge is not collected. The cap on the fund was set at $50 million.

Senate Bill 264 - Response Office, Depots and Corps

This bill established a Response Office in the Department of Environmental Conservation, to be staffed with people who are expert in spill response and who are trained as a team to lead a state response. The Department is currently staffing the Response Office. The bill also allows for the development of response corps, to be composed of people such as fishermen who are knowledgeable about local waters and poised to effectively participate in a spill response. It allows for the establishment of depots of response equipment, primarily to meet the needs and interests of local communities to have resources that they control for defensive measures in key locations. The bill in no way relieves any responsible party of their obligation to respond.

Senate Bill 271 - Civil Penalties for Discharge of Crude Oil

This bill strengthened the civil penalties for discharge of crude oil from what is provided in previous statute. It applies only to discharges of unrefined crude oil. It also increases the cap on penalties to $500 million.

Senate Bill 277 - Commission to Investigate Valdez Spill

This bill established a seven member commission to investigate the T/V Exxon Valdez oil spill and provide direction on policy needed to prevent and better respond to another such event. Much of the 1990 legislation introduced was in response to recommendations made by the Oil Spill Commission.

House Bill 315 - Negligent Operation of Tankers and Other Environmental Crimes

This bill was originally introduced by Governor Steve Cowper last spring in the immediate aftermath of the Exxon Valdez oil spill. The original bill created a new crime of negligent operation of a tank vessel, making it a class C felony. At the beginning of this legislative session, working with the Department of Law, the bill was expanded to include other environmental crimes and determine appropriate levels of criminal behavior for each one. One section of the bill, Imposing criminal liability on individuals for acts done in the name of an organization, was rolled in from House Bill 409. In general, the bill raised the penalty for criminally negligent violations of environmental laws from class B misdemeanor to A misdemeanor; knowing violations from A misdemeanor to a class C felony; and negligent discharges of oil in excess of 420,000 gallons (1,588 m^3) from class B misdemeanor to class C felony.

The bill was amended on the House floor to remove the provision that made knowing violations a class C felony and leave at a class A misdemeanor level. The section imposing criminal liability on corporate officers was also removed on the House floor. The bill was further amended in the Senate to reduce negligent operation of a tank vessel to a class A misdemeanor, while making reckless operation of a tank vessel a class C felony. The bill passed the Senate in the final days of session and the House concurred with the changes made in the Senate.

House Bill 316 - Fines Against Organizations

This was another bill introduced last spring by the Governor after the state made the decision not to pursue criminal charges against Exxon because the maximum fine the state could have obtained would have been $100,000.

The bill provides a new fine structure as follows:

1. $500,000 for a felony offense or for a misdemeanor that results in death;
2. $200,000 for a class A misdemeanor offense that does not result in death;
3. $ 25,000 for a class B misdemeanor offense that does not result in death;
4. $ 10,000 for a violation;
5. an amount that is two times the pecuniary gain realized by the defendant as a result of the offense; or
6. an amount that is two times the pecuniary damage or loss cause by the defendant to another, or to the property of another, as a result of the offense.

In addition, in imposing a fine against an organization, the court must consider measures taken by the organization to discipline the individual responsible or to prevent the recurrence of the offense, the organization's obligation to make restitution and the extent to which imposition of a fine will impair the ability to make restitution, and the extent to which the organization will pass the expense on to consumers.

House Bill 566 - State Response Actions and Planning involving Oil Spills and Establishing the State Emergency Response Commission

The final compromise version of the bill does the following:

1. Retains the response office and the State Emergency Response Commission (SERC) in DEC.

2. Authorized the governor to use money from the Oil and Hazardous Substance Release Response Fund (470 fund) during disasters related to oil or hazardous substance discharges.

3. Provides that DEC and Division of Emergency Services (DES) shall carry out the responsibilities assigned to them by law under an incident command system to be established under the state and regional master plans.

4. Transfers the oil and hazardous substance response corps and response depots to the Division of Emergency Services. Expenditures are as defined in state and regional contingency plans.

5. Established the SERC in statute, retaining DEC as chair.

6. Establishes the Hazardous Substances Spill Technology Review Council within the SERC to review research topics, establish testing protocols to evaluate the effectiveness of spill technologies, identify sources of money for discharge-related research, and serve as a clearinghouse for containment and cleanup technology.

House Bill 567 - Plan Requirements, Financial Responsibility Requirements and Inspection Authorities

(This bill was another part of the Governor's spill package).

The version that was finally approved by both bodies includes the following provisions:

1. Limits the liability of response action contractors.

2. Adds prevention as an element of contingency plans.

3. Certificates will be provided to contingency plan holders upon approval of the plan by the department.

4. Requires an applicant for a contingency plan to plan for the cleanup of the following discharges:

   Oil terminal facilities - Contain or control and clean up a discharge equal to the largest tank at the facility within 72 hours;

   Exploration or production facilities or pipelines - Contain or control and clean up to the realistic maximum discharge within 72 hours;

   Oil tank vessel or barge - Vessels smaller than 21 million gallons (79,380 m^3) must plan to contain or control and clean up a 2.1 million gallon (7,938 m^3) discharge and have the equipment within the region of operation, while vessels larger than 21 million gallons (79,380 m^3) must plan to contain or control and clean up a 12.6 million gallon (47,630 m^3) discharge and have the equipment within the region of operation; additionally, the plan holder must demonstrate access to other equipment outside of the region of operation to clean up a realistic maximum discharge, and the ability to have that equipment deployed at the discharge site within 72 hours;

   Non-crude tank vessel or barge - Contain or control the greater of 15% of the capacity of the vessel or the realistic maximum discharge within 48 hours and clean up the discharge within the shortest possible time consistent with minimizing damage to the environment.

5. Sets financial responsibility requirements at the following levels:

Crude oil terminals	\$50 million
Non-crude oil terminals	\$1-50 million @ \$0.60/gallon (\$0.002/m^3) capacity
Offshore exploration/production	\$50 million
Pipelines	\$50 million
Onshore production facilities	\$20 million
Onshore exploration facilities	\$5 million
Crude oil tank vessels & barges	\$100+ million @ \$7.14/gallon (\$0.03/m^3)
Non-crude tank vessels & barges	\$1-35 million @ \$2.38/gallon (\$0.01/m^3) capacity

6. Proof of financial responsibility will be acknowledged with a certificate of approval. Allows the use of Protection and Indemnity clubs and other forms of proof.

7. Authorizes DEC to participate in the examination of vessels, barges, pipelines and facilities by federal and state agencies with jurisdiction and to do independent inspections when the department determines that federal or state agencies with jurisdiction are not performing timely or adequate inspections.

8. Authorizes DEC to survey non-crude oil terminal facilities with a storage capacity between 210,000-420,000 gallons (794-1588 m^3)

9. Requires DEC to study and make recommendations to the legislature concerning the oil discharge response capabilities necessary for non-crude tank vessels and barges.

10. New planning standards and financial responsibilities requirements take effect June 1, 1991.

House Bill 578 - Citizens' Oversight Council

Introduced by the House Resources Committee, this bill was one of the top recommendations of the Oil Spill Commission. The bill establishes a five member oversight council on oil and other hazardous substances. The council has the following duties:

1. Serve as a watchdog of state and federal agencies with responsibilities for the prevention of and response to oil spills;

2. Recommend appropriate prevention policies;

3. Help develop interstate compacts regarding prevention of oil spills;

4. File and annual assessment of major area of risk and evaluate the performance of state and federal regulatory agencies.

The bill attempts to address the issue of an involved citizenry to help ensure compliance with environmental laws and regulations, as well as providing a forum for citizen participation.

D. OREGON

Existing Plans:

1. Oil and Hazardous Materials Emergency Response Plan. A legislatively mandated statewide plan developed in 1987, the plan:

    a. Describes local, state and national communications networks for reporting spills of any kind;

    b. Identifies who is in charge, sets up an incident command system, and details the roles and responsibilities for local, state, and federal agencies as well as industry and volunteer groups during any spill;

    c. Details where responders may obtain technical information for any type of spill;

    d. Describes how the response system will work from the local level to the national level for all types of spills.

As part of the state's preparedness program, a system of 10 regional hazardous materials response teams is being established. The teams of local responders will be equipped and trained with state funds and housed at local fire departments. The teams primary focus will be on hazardous materials incidents but they will also be prepared to provide limited initial response to major oil spills. The will be able to respond to most parts of the state in one hour.

The state also has a comprehensive state-funded hazardous materials training program for all responders. The program is managed through the State Fire Marshal's Office. Responders are trained to certified levels of competency.

In addition, a computerized data base of all hazardous materials stored and utilized at facilities in the state is available on call or by computer to all emergency responders. A computer data base of all hazardous materials response equipment also exists. Oil spill response equipment and resources will be added to this data base.

Natural resource protection plans

At present, three coastal areas and one river system have plans specifically designed to protect the sensitive resources of those areas. These areas are: the Columbia River to Bonneville Dam, the Willamette River to Willamette Falls, Yaquina Bay and Coos Bay.

All three plans identify sensitive natural resources, prioritize them for protection on a seasonal basis, suggest methods for protection, identify boom sites and possible containment sites, locate access points, and identify available equipment, personnel and response needs.

New Initiatives

The Oregon legislature recently mandated the Department of Environmental Quality (DEQ) to develop oil spill contingency plans for the entire Oregon coast and all the estuaries, the Columbia River to Pasco, and the Willamette River to Willamette Falls.

The plans will build on and supplement existing planning documents utilizing Geographic Information Systems (GIS) mapping systems. They will focus on natural resource protection, emphasize interstate coordination, and will develop response strategies and guidelines for dealing with wildlife rehabilitation, prevention, volunteer management, debris disposal, dispersant use, and damage assessment. The plans are due to be completed July 1, 1991.

New legislation also required DEQ to develop rules to require all ships carrying bulk petroleum products over 300 gross tons to provide financial assurance of $1 million or $150/ton.

Another piece of legislation requires DEQ to develop rules to impose additional civil penalties for the unlawful discharge of oil. All monies collected would be placed in a newly created fund to be used for damages to the environment.

Initiatives under consideration

Legislation will be developed to require all tank vessels and facilities to develop spill prevention and control contingency plans that are exercised and updated on an annual basis. Task Force Recommendations related to state jurisdiction will be incorporated into the new legislation as feasible.

E. CALIFORNIA

On September 22, 1990, Governor Deukmejian signed the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act into law (SB 2040, Statutes 1990-Chapter 1248). The major provisions of this comprehensive law to increase the state's abilities to prevent and respond to oil spills include:

Creation of an Office of Oil Spill Prevention and Response with the Department of Fish and Game or the Resources Agency to centralize the State's oil spill prevention, contingency planning, and response functions;

Requirements for updating and improving state and local government contingency planning;

Requirements for marine oil transporters to have spill response operations in place and to show adequate financial resources available for spill response and liabilities;

Requirements for oil companies and transporters to submit new oil spill contingency plans;

Establishment of funds from fees assessed on oil to support prevention and emergency response activities, with provision for an additional borrowing authority to be replenished by responsible parties or oil fees in the event of a spill;

Creation of harbor safety committees for major state harbors to make plans for the safe operation of vessel traffic;

Provisions for qualified immunity for those, other than the responsible party, who respond to an oil spill;

Development of training programs to certify government and industry personnel and volunteers to be qualified for spill clean-up work;

Coordination with the U.S Coast Guard to determine if additional safety programs or regulations are necessary;

Expansion of vessel traffic systems; and

Enhancement of preventive regulation and inspection programs for oil transport and production operations through Office of Oil Spill Prevention and Response and the State Lands Commission.

The State's policy preferring pipelines as the mode for transporting oil has been implemented by several means. The Governor, in negotiations with the Secretary of the Interior, required in federal lease sales that oil be transported by pipelines to onshore processing facilities where technologically feasible and environmentally preferable. In addition, Section 30265(b) of the California Coastal Act states the legislature's finding that transportation studies conclude pipeline oil transport is generally both economically feasible and environmentally preferable to other methods of transport. The California Coastal Commission in its consistency determinations has made detailed findings documenting the advantages of pipeline transportation of crude over transportation by tanker to reduce the risk of oil spills and reduce the level of air pollutant emissions. These findings are supported by data compiled by the Commission, the Council on Environmental Quality (1975), the Rand Corporation (1975), the California State Lands Commission (1982), the Oil Spill Intelligence Report (1981), the U.S. Coast Guard (1981, 1982), the County of Santa Barbara (1984), and the All American Pipeline Company (1984).

The Office of Emergency Services has convened an Emergency Waste Disposal Task Force to address the disposal of emergency generated hazardous waste including waste from oil spills. The Task Force is looking into the state's current regulatory programs and facilities to see if any improvements are needed to handle foreseeable emergencies.

The Department of Fish and Game, in cooperation with the State Interagency Oil Spill Committee, has released a report to the legislature on the "Evaluation of Capabilities to Respond to Large Oil Spills in California Marine Waters." Their report concludes that tanker spills remain the largest threat of oil spills in the State's marine waters. Recommendations contained in the report will be used by the legislature in its deliberations on current legislation.

The State is in the process of updating the California Oil Spill Contingency Plan which, among other things, will reflect the use of Incident Command System for response to spills.

The State Lands Commission is developing a Geographic Information System (GIS) to improve response to oil spills. The GIS is in response to permit conditions placed on State offshore lessees which requires the development of a real-time wave, current and wind monitoring system for use in oil spill prediction models. This GIS will be used to integrate oil spill model results with resource data from the surrounding physical environment. The GIS will also provide networking solutions to optimize equipment and manpower response to the location of an oil spill. This system is expected to be operational in June 1992. The State Lands Commission, in cooperation with the Coast Guard and other State agencies, is also planning to conduct a comprehensive review of marine terminals operating under State leases.

The California Coastal Commission, on September 11, 1990, adopted a resolution for improvements in oil spill prevention and response for the California Coastline. The resolution contains recommendations for Commission actions to reduce the number and size of spills in marine waters and to improve response to spills that may occur. The recommendations address the following areas: navigation, oil transportation, geotechnical/engineering, comprehensive national energy policy, contingency planning, and oiled wildlife rehabilitation.

Through funding provided under the Coastal Resources and Energy Assistance Program administered by the Secretary of Environmental Affairs, several local coastal governments have created or updated oil spill contingency plans. To date, nine counties have expended nearly $600,000 on specific contingency planning efforts. In addition, several coastal cities and counties have conducted planning studies under this grant program related to offshore development and transportation of oil.

The County of Santa Barbara has completed its own Marine Emergency Management Study and a Crude Oil Transportation Analysis, which will be used in making county permitting decisions for offshore oil and marine terminal related projects.

Mendocino County has developed an Offshore Oil Spill Emergency Response Plan, culminating a two year effort in cooperation with federal, state and local agencies, and private organizations. This Plan integrates an incident command system in conjunction with federal and state plans. The County is also constructing a new emergency communications system, purchasing dedicated oil spill clean-up equipment, and developing a training program for commercial fishermen. In addition, the County participated in a coastline emergency response exercise conducted by the U.S. Coast Guard and the California Department of Fish and Game on May 26, 1989.

The major industry oil spill cooperatives are in the process of upgrading and expanding their equipment available for spill response. In Southern California, Clean Coastal Waters is adding four additional vessels, two high capacity recovered oil transfer pumps and a skimming system for vessels of opportunity. In the Santa Barbara Channel area, Clean Seas is adding two open ocean skimmers, three high capacity pumps, and various pieces of support equipment. For Northern California, Clean Bay is adding two boom deployment boats and additional skimmers and semi-inflatable work boats. In addition, Clean Seas and Clean Bay are conducting training programs with commercial fishermen to aid in spill clean up efforts.

F. UNITED STATES

Federal Legislation

On August 18, 1990, President Bush signed the Oil Pollution Act of 1990, which incorporated several elements of bills H.R. 1465 and S. 686 passed by the House and Senate respectively in 1989. Major provisions contained in the new law include:

- requirement of double hulls on all tankers within a 20-year timeframe
- increase in limit of liability and financial responsibility evidence to $1200 per gross ton, or $10 million for vessels exceeding 3,000 gross tons.
- establishment of a $1 billion federal cleanup trust fund
- requirements for vessel manning and work shifts
- increase in severity of penalties
- establishment of an alcohol and drug abuse review program.
- standards for hull plating thickness
- review of vessel traffic service systems
- studies on navigation safety standards
- develops a national planning and response system

United States Coast Guard

On June 22, 1990, the Thirteenth District of the USCG conducted a one day Public Hearing to consider proposed rule and policy changes that could affect vessel operations and equipment while in the navigable waters of the States of Washington and Oregon. Final comments were due July 22, 1990.

The Coast Guard believes that the current operating practices of tank vessel and chemical carriers in Pacific Northwest waters need to be reviewed to reduce risk of environmental damage due to collisions, groundings and rammings to enhance pollution prevention through increased vessel safety measurers.

The Coast Guard specifically requested comments concerning anticipated economic impact of the proposals being considered to improve accuracy of evaluating costs and potential benefits if the proposals were further developed and implemented.

Also being sought, was input related to factors affecting the implementation of the proposals. An explanation of how much time it might take to implement and the delays which can be anticipated were of particular concern. Initially, the Coast Guard is considering implementing changes in the waters of Puget Sound, the Strait of Juan de Fuca, Rosario Strait, Hood Canal and the Columbia River. The following outlines the topics and rationale for change.

PROPOSAL 1: Tug Escorts (Puget Sound, Strait of Juan de Fuca, Rosario Strait)

Tug escorts could be required for loaded single-propulsion tankships and chemical carriers in the Strait of Juan de Fuca west of Port Angeles and adjacent navigable waters. Washington state law does not presently provide for tankship escorts west of Port Angeles. Tankships with a single means of propulsion present a greater risk of grounding in the event of a propulsion system casualty due to lack of a backup system. There are no towing resources in the western reaches of the strait of Juan de Fuca dedicated to responding to these types of casualties. Anchoring is difficult due to the depth of the waters. Swift currents increase the likelihood that a grounding would occur before anchoring could be achieved or assistance provided by a tug. Similar conditions exist in other waterways. Providing an escort for these vessels could reduce the risk of groundings.

PROPOSAL 2: Emergency Towing Plan (Puget Sound, Strait of Juan de Fuca, Rosario Strait)

An emergency tow plan could be required for tankships and chemical carriers that are also required to have escorts. Certain tankships already are required to be escorted under Washington state law east of Port Angeles. Other tankships and chemical carriers could be required to have tug escorts under Proposal 1. There is currently no requirement that these vessels have a plan that sets forth how assistance will be rendered by the escort vessel in the event of a casualty. It is believed that such a plan will provide for better communications between the escort vessel and the vessel being escorted and thereby assure a coordinated effective response to a propulsion or steering casualty on the tankship and reduce the risk of grounding or a mishap while assistance is being rendered.

PROPOSAL 3: Speed Criteria (Puget Sound, Strait of Juan de Fuca, Rosario Strait)

Speed criteria could be established for tankships and chemical carriers under escort. Certain tankships are required to be under escort. However, there have been no criteria established relative to the speed at which these vessels must operate. Of major concern is that tankships not exceed a speed which would render their escort ineffective in providing assistance if a steering or propulsion casualty were to occur. The safety of the escorting tug and its operating characteristics are important considerations.

PROPOSAL 4: Additional Bridge Personnel (Puget Sound, Strait of Juan de Fuca, Rosario Strait, Columbia River)

More than one licensed officer could be required on the bridge of tankships and chemical carriers while in the Columbia River, the Strait of Juan de Fuca and adjacent navigable waters. A pilot would be considered one of those officers. Vessel casualties have shown that the presence of a second officer on the bridge of vessels transiting pilotage waters could reduce the risk of groundings and collisions. A second officer on watch, perhaps designated as the navigating officer, could relieve the conning officer from a variety of tasks that can detract from maneuvering the vessel in piloting waters.

PROPOSAL 5: Pilotage (Strait of Juan de Fuca)

In furtherance of the objective of Proposal 4, the requirement for pilotage could be extended through the Strait of Juan de Fuca. This would in effect add a second officer on watch on vessels in the waters west of Port Angeles. Depending upon which action is taken by the state of Washington related to this issue, a federal pilot could be required on both foreign trade vessels and coastwise U.S. vessels or only on coastwise vessels. Vessels navigating the strait west of Port Angeles would benefit from the same level of local expertise as vessels receive inside Puget Sound. It would also reduce the communications difficulties in that area resulting from the varying degrees of competence in speaking and understanding English. Inasmuch as the Coast Guard presently has the authority to require pilotage under 46 USC 8502 for coastwise domestic vessels within their navigable waters of the Strait of Juan de Fuca, the Coast Guard is nevertheless requesting comments on the proposed policy change in view of the operational and economic impacts it could have.

PROPOSAL 6: Emergency Tow Lines on Barges (Puget Sound, Strait of Juan de Fuca, Rosario Strait, Columbia River)

Require emergency tow lines on barges transporting oil and chemicals in the Strait of Juan de Fuca and the Columbia River and adjacent navigable waters. The bars on the coasts of Washington and Oregon are particularly hazardous to tug-barge combinations. Recent casualties involving tow line failures have focused on the need for a backup system to the primary tow line that can be put into use quickly. While prudent barge companies have implemented such systems this practice has not received industry wide acceptance.

U.S. Secretary of the Interior

At its meeting in April 1989, the Outer Continental Shelf (OCS) Policy Committee formed a subcommittee to review analyses of the Exxon Valdez oil spill and to make recommendations to address the policy implications for the OCS oil and gas program. The Policy Committee provides advice to the Secretary of the Interior on discretionary functions of the OCS Lands Act. This subcommittee included representatives from a wide range of coastal states, industry, and the environmental community.

Given that oil spills will occur even with the best safeguards, the subcommittee concluded that a credible national spill prevention and response program for both OCS and non-OCS oil spills in the marine environment is needed. Eight essential elements of such a program were identified:

1. A demonstrated commitment to prevent oil spills;
2. A demonstrated oil spill response capability, especially a command/control structure and decision process adequate to insure timely, coordinated response with clear roles and responsibilities for local, state, and federal government and the private sector;
3. Adequate characterization of the marine and coastal environment, including both information and analysis, accessible to key decision makers;
4. The capacity to restore economic and environmental resources as quickly as possible if damage occurs;
5. Appropriate and timely compensation for damaged parties;
6. A mechanism for research on oil spill impacts;
7. A meaningful role for all interested and responsible parties, including the public, in as many of these activities as possible, from oil spill prevention and contingency planning to environmental oversight of ongoing operations and participation in clean up and restoration activities; and
8. Funding at appropriate levels for all of the above.

Department of Commerce

The National Oceanic and Atmospheric Administration (NOAA) within the U.S. Department of Commerce is continuing its work on the National Marine Sanctuary Program. Federal law authorizes the Secretary of Commerce to designate discrete areas of the marine environment of special national significance as National Marine Sanctuaries to ensure comprehensive management and protection of their resources. Since the Program's inception in 1972, eight marine sanctuaries have been designated nationwide. Offshore the West Coast currently designated sanctuaries include Channel Islands, Gulf of the Farallones, and Cordell Bank, which are all located off California.

Pursuant to legislation passed by Congress in November 1988 (P.L. 100-627), NOAA currently is undertaking a review of an additional ten areas, four of which are located in the Pacific, as active candidates for National Marine Sanctuary designation. Prior to final designation, each area will undergo an environmental impact review pursuant to the National Environmental Policy Act. The four West Coast candidates are:

- North Puget Sound, offshore Northern Washington;
- Western Washington Outer Coast, offshore Washington;
- Monterey Bay, offshore Central California;
- Santa Monica Bay, offshore Southern California.

G. CANADA

The Government of Canada has taken a number of important initiatives regarding oil spills and transportation during the past year. They are significant because federal agencies have the primary legislative authority to regulate activities at sea and to safeguard fisheries and marine mammals. In particular, the Canadian Coast Guard regulates vessel traffic and shipping and spills of polluting substances through the Canada Shipping Act and the Navigable Waters Protection Act. The Federal Department of Fisheries and Oceans is responsible for marine habitat and fisheries management under the Canada Fisheries Act. Environment Canada has a mandate to coordinate the federal government's efforts to deal with environmental emergencies.

Although no legislative changes have recently been enacted to address the issue of marine oil spills, federal agencies have taken a number of measures aimed at improved spill prevention and response. During 1989, the federal agencies involved in marine oil spills conducted an internal review of spill prevention systems and response capability, and the adequacy of legislation and enforcement. In June of 1989, the Federal Minister of the Environment appointed a 3-person inquiry, headed by David Brander-Smith, to parallel the internal review activities. It included a nationwide public review of Tanker Safety and Marine Spills which was completed in December of 1989. The public review panel reviewed submissions from industry, the public, and from government including the internal review findings as well as studies the panel itself commissioned. Issues addressed in the Brander-Smith inquiry included spill prevention, preparedness, and the legal framework for marine oil and chemical spills. The Brander-Smith report is expected to be made public in October 1990, and will report on specific regional issues across Canada, with emphasis on the West Coast.

In April of 1990, the federal Ministry of the Environment released a "Framework for Decision Making" as a vehicle for public input to the federal government's "Green Plan". The Green Plan was developed as a strategy to incorporate environmental considerations into the decision making process and programs of government. Among many other issues it devotes a page to the issue to marine spills. It is expected that late 1990, the federal government will announce decisions on programs identified in the draft plan.

The Canadian Coast Guard has been involved in marine spill activities since the 1988 Nestucca spill. It has established two new equipment depots along the B.C. coast, at Ucluelet and Sandspit. Two new response vessels have been purchased for the Victoria and Vancouver harbors. The Coast Guard is actively reviewing the dimensions of the Tanker Exclusion Zone, established on a cooperative basis with U.S. shipping interests to confine Alaskan crude oil tankers to 85 miles off the coast. A new routing system at the entrance to Juan de Fuca Strait is also being discussed with industry, to reduce the navigation risks for all vessel traffic. The Coast Guard is also working on a proposal for enhanced Vessel Traffic Services radar coverage for Vancouver and Prince Rupert harbors. Finally, it has initiated contract discussions with several tribe councils to arrange for native involvement in response to future spills.

ATTACHMENT 1

OIL SPILL MEMORANDUM OF CO-OPERATION

Between the

Province of British Columbia

the

State of Washington

the

State of Oregon

the

State of Alaska

and the

State of California

June 1989

OIL SPILL
MEMORANDUM OF CO-OPERATION

Whereas the Province of British Columbia (the "Province") and the States of Washington, Alaska, Oregon and California (the "States") have a mandate to enhance the environment and protect it from oil spills; and

Whereas the Province and the States share and manage common transboundary fish and wildlife particularly in and near the waters of the Pacific Ocean; and

Whereas the Province and the States concur that such fish and wildlife and the supporting environment must be given the fullest protection from damage caused by spills and other discharges of oil; and

Whereas it is paramount to maintain and improve a co-ordinated response to prevent, reduce, or overcome the effects of an oil spill in our respective waters, within the framework of the Canada–U.S.A. Joint Marine Pollution Contingency Plan; and

Whereas the future requires continued need for co-operation in preventing or abating oil spills in the aforementioned waters, including the participation of the Federal Governments of Canada and the United States;

Now therefore, in recognition of the spirit of co-operation which has characterized their efforts thus far, the Province of British Columbia, through its Premier, the Honourable W. N. Vander Zalm, and the State of Washington, through its Governor, the Honorable Booth Gardner, the State of Oregon, through its Governor, the Honorable Neil Goldschmidt, the State of Alaska, through its Governor, the Honorable Steve Cowper, and the State of California, through its Governor, the Honorable George Deukmejian, join together in this memorandum of co-operation pertaining to the resolution of mutual problems of oil spill pollution in the aforementioned waters. In this regard the Province and the States have formed an Oil Spill Task Force to develop co-ordinated programs for oil pollution prevention, abatement and response.

The Task Force is chaired jointly by the British Columbia Deputy Minister of Environment, the Washington Director of Department of Ecology, the Oregon Director of Department of Environmental Quality, the California Environmental Affairs Agency, and the Alaska Commissioner of Department of Environmental Conservation. To ensure future effective co-ordination of intergovernmental efforts, representatives of each government will be appointed to maintain this memorandum. This responsibility will be included in the job descriptions of these representatives and written notification of their appointment will be provided to all other parties to this memorandum. These representatives will meet annually to review progress and plan future co-operation. Four subcommittees have been established to address:

(1) Prevention Alternatives

(2) Technology Sharing

(3) Emergency Response

(4) Financial Recovery.

Issues addressed by the subcommittees will include:

(1) the creation of a joint emergency response plan;

(2) an evaluation of capabilities and technologies for spill prevention, response and containment;

(3) a review of tanker safety, routes and operating requirements;

(4) an inventory of equipment, material, and personnel available to either the Province or the States for use in oil spill control and clean-up operations;

(5) joint spill response drills and training.

The duration of this memorandum is intended to be perpetual, but each party may terminate at will its agreement by giving written notice to the other parties.

The parties do not intend by this memorandum to create any separate legal or administrative entity.

Each party shall bear its own expenses of co-operating pursuant to this memorandum.

Signed this 16th day of June 1989.

The Honourable W. N. Vander Zalm
Premier, Province of British Columbia

Signed this 16th day of June 1989.

The Honorable Booth Gardner
Governor, State of Washington

Signed this 3rd day of August 1989.

The Honorable Steve Cowper
Governor, State of Alaska

Signed this 3rd day of July 1989.

The Honorable Neil Goldschmidt
Governor, State of Oregon

Signed this 9th day of November 1989.

George Deukmejian

The Honorable George Deukmejian

Governor, State of California

ATTACHMENT II

States/BC Oil Spill Task Force
Special Reports and Related Information

This document is a brief summary of the references utilized by the Task Force in preparing the draft report.

Contact Phone Numbers

Ann Essko, Washington Attorney General's Office (Chair, Financial Recover Subcommittee)	(206) 459-6703
John Bones, BC Ministry of Environment (Chair, Prevention Alternatives Subcommittee)	(604) 356-9306
Dean Monterey, BC Ministry of Environment (Chair, Emergency Response Subcommittee)	(604) 356-7721
Jon Neel, Washington Department of Ecology (Chair, Technology Sharing Subcommittee)	(206) 459-6039

TITLE: Interim Report of the States/British Columbia Task Force on Oil Spills

AUTHOR: Province of British Columbia and States of Washington, Oregon and California

DATE: December 1989

CONTACT: Jon Neel or John Bones

SUMMARY: A progress report for the States/BC Task Force. This document describes progress by each of the four subcommittees (Prevention Alternatives, Emergency Response, Financial Recovery, and Technology Sharing.)

PREVENTION SUBCOMMITTEE

TITLE: Marine Oil Transportation Systems Evaluation of Environmental Risk

AUTHOR: D.F. Dickins Associates, Ltd.

DATE: August, 1990

CONTACT: John Bones

SUMMARY: This study conducts an environmental risk analysis for marine oil transportation in the Puget Sound region and on the B.C. coast, and integrates the studies of risk, tanker safety, traffic systems and supply routes to develop a list of practical alternatives for reducing the risk of oil spills on the west coast.

TITLE: Crude Oil and Petroleum Traffic in British Columbia and Puget Sound

AUTHOR: Marvin Shafer and Associates

DATE: December, 1989

CONTACT: Bill Wolferstan/John Bones

SUMMARY: An analysis of marine oil traffic patterns in the Vancouver Harbor/Puget Sound region, including an evaluation of future trends and alternatives to reduce tanker traffic.

TITLE: Tanker/Barge Onboard Safety

AUTHOR: DF Dickins and K Krajczar

DATE: December 1989

CONTACT: Bill Wolferstan/John Bones

SUMMARY: An analysis of construction and operating standards which will reduce risk of casualty and the volume spilled should a casualty occur. The report reviews data on marine casualties as a basis for its analysis and recommendations.

TITLE: Report to the Premier on Oil Transportation and Oil Spills

AUTHOR: David Anderson, Special Advisor

DATE: November 1989

CONTACT: John Bones

SUMMARY: Addresses a range of issues with a focus on oil spill prevention in B.C. including: reduction of oil consumption; reducing tanker traffic; improving ship safety; oil spill planning, management, organization and response; and compensation. Recommendations directed to both Federal and Provincial agencies.

TITLE: Spill Prevention Issue Paper

AUTHOR: Puget Sound Water Quality Authority

DATE: December 1989

CONTACT: Jerry Boese, PSWQA

SUMMARY: An analysis of what can be done in Puget Sound in preventing spills of Petroleum and other hazardous substances. Includes recommendations for contingency planning, operator training, vessel traffic safety, federal design standards, civil and criminal penalties, liability for cleanup costs and damages, and public education.

TITLE: Oil Spill Risk for Southern B.C./Northern Washington

AUTHOR: Phil Cohen, Richard Aylesworth, Bob Sherwood, (Environment Canada)

DATE: September 1990

CONTACT: John Bones

SUMMARY: This report addresses the following question to the extent that information is currently available. What is the present navigation risk of the petroleum transportation system in the Southern B.C./Northern Washington coast marine area and what potential is there for reducing this risk?

TECHNOLOGY SHARING SUBCOMMITTEE

TITLE: 1988 Petroleum Transportation Estimates for Puget Sound and the Strait of Juan de Fuca

AUTHOR: Scott H. Chadbourne
Thomas M. Leschine

DATE: December 1989

CONTACT: Jon Neel

SUMMARY: Quantifies vessel and petroleum marine transportation in Puget Sound, Grays Harbor and the Strait of Juan de Fuca, and provides the following information:

Annual volume of petroleum shipped
Type of petroleum product
Type of transport vessel
Transportation routes
Vessel movements between points (transits)

TITLE: Early Response Estimates for Clean Sound Cooperative in the Puget Sound Area

AUTHOR: Woodward-Clyde Consultants (Prepared for Clean Sound Cooperative)

DATE: December 5, 1989

CONTACT: Jon Neel

SUMMARY: Provides estimates of the early response capabilities of Clean Sound and private equipment that would be used in various oil spill scenarios. The following items are addressed:

oil spill response time
early response oil spill recovery estimates (assuming current equipment inventory)
response capability estimate for a "worst probable spill" scenario
additional equipment purchases designed to provide improved capability to a "worst probable spill" scenario.

TITLE: Summary of Technology Proposals Received Through the B.C. Ministry of Environment

AUTHOR: Margaret MacNeill

DATE: March 1990

CONTACT: Bill Wolferstan/John Bones

SUMMARY: Presents a brief summary of all the oil spill cleanup technology proposals reviewed by the British Columbia Ministry of Environment. Evaluations of the technology suggestions by the Environmental Emergency Technology Division of Environment Canada are provided.

RESPONSE SUBCOMMITTEE

TITLE: B.C./States Oil Spill Task Force
Emergency Response Guide

AUTHOR: T.C. Davis

DATE: July, 1990

CONTACT: Dean Monterey

SUMMARY: Provides an effective mechanism to assure the proper notification of provincial, state, federal, and local officials during spills potentially affecting international and state waters. The plan also addresses Contingency Plan coordination and mutual aid in the event of a major spill in waters of one of the jurisdictions.

FINANCIAL RECOVERY SUBCOMMITTEE

TITLE: Selected Cost Recovery Options and Issues
Arising From a Maritime Oil Spill

AUTHOR: Ann Essko

DATE: July, 1990

CONTACT: Ann Essko

SUMMARY: Summarizes the legal authority to recover costs and damages from responsible parties in the four jurisdictions participating in the Task Force. The document discusses provisions of Federal admiralty law; federal and state statutes which apply; and common law.

TITLE: Generic Field Contract

AUTHOR: Ann Essko

DATE: July, 1990

CONTACT: Ann Essko

SUMMARY: A draft agreement between the Task Force jurisdictions and the responsible party (Spiller). The contract will provide a mechanism to allow the owner/operator of the vessel or facility to take full financial responsibility for clean up costs, state oversight costs, and damages.

OTHER ASSOCIATED REPORTS

TITLE: Spill: The Wreck of the Exxon Valdez
(Executive Summary)

AUTHOR: Alaska Oil Spill Commission

DATE: January, 1990

CONTACT: Alaska Oil Spill Commission

SUMMARY: Recommendations of the Commission for improving oil spill prevention and response in Alaska, including:

A comprehensive prevention policy
Responsibility of industry
State and Federal regulation and oversight
Government response posture
Implementing the response
Research and development

TITLE: Special Reports of the Alaska Oil Spill Commission

AUTHOR: Alaska Oil Spill Commission

DATE: November 89 to Jan. 1990

CONTACT: Alaska Oil Spill Commission

SUMMARY: Several papers assessing prevention:

The wreck of the Exxon Valdez - Lessons for prevention
Findings of the Alaska Oil Spill commission - Presented to the National Transportation Research Board Panel on Oil Transportation issues
International use of Dispersants
Testimony to the joint hearing of Alaska Senate and House Committees

TITLE: Report to the Governor on the Nestucca Oil Spill

AUTHOR: Washington State Department of Ecology

DATE: June 1989

CONTACT: Jon Neel

SUMMARY: This is the formal State "OSC report" (On Scene Coordinator) on the Nestucca incident, and includes:

Summary of what happened
Analysis of the state's response
Discussion of damages
Recommendations on what the State needs to do to be better prepared for the next spill.

TITLE: The American Petroleum Institute Task Force Report On Oil Spills

AUTHOR: American Petroleum Institute (API)

DATE: June 1989

CONTACT: Del J. Fogelquist, Western States Petroleum Association (WSPA)

SUMMARY: Recommendations made by the oil industry that it take significant actions in three major areas - prevention of spills, response to spills, and spill related research.

TITLE: Steering Committee report and Recommendations on the Implementation of PIRO

AUTHOR: Petroleum Industry Response Organization (PIRO)

DATE: January 1990

CONTACT: Del Fogelquist, WSPA

SUMMARY: Recommendations by PIRO on establishing and implementing an industry - wide response program, including:

Analysis of key legislative proposals and their impact
Role of PIRO in spill response, contingency planning, and disposal
Structure of PIRO
Funding of PIRO

TITLE: Comparative Assessment of State Pilot Safety

AUTHOR: R.D. Leis (for the American Pilots Association, Inc.)

DATE: June 23, 1989

CONTACT: Author

SUMMARY: An analysis of pilot induced marine casualties which compares state verses non-state pilots.

Alaska Oil Spill Commission. Spill: The Wreck of the Exxon Valdez. Implications for Safe Marine Transportation. State of Alaska. January 1990.

Anchorage Daily News. 1989. "Double bottom tankers". October 16.

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California Coastal Commission. Oil Spill Response Capability Study. November 1983.

California Coastal Commission. Oil and Gas Activities Affecting California's Coastal Zone. June 1987

California Coastal Commission Committee on Offshore Oil. Oil Spill Containment and Cleanup Hearing. Transcript. March 24, 1987.

California Department of Fish and Game. Pollution Response Manual. 1989.

Dickens, D.F. Review of Tanker/Barge Safety. Draft Final Report. 1990.

Doughton, S. 1990. "Officials handle big oil spill - hypothetically". The News Tribune. March 1.

Environmental Sciences Limited. The Nestucca Oil Spill: Preliminary Evaluation of Impacts on the West Coast of Vancouver Island. 62 pages. Prepared for Environment Canada and B.C. Ministry of Environment by Environmental Sciences Limited. March 1989.
Fox, W.J. Action Plan for the Restoration of Cassin Aukley Colonies by Removal of Alien Mammalian Predators from St. James, Murchison, Langara, Cox and Lanz Islands. 64 pages. Prepared for Environment Canada, and Canadian Wildlife Service. 1990.

Harding, L.E., Englar, J.R. The Nestucca Oil Spill: Fate and Effects to May 31, 1989. 52 pages. Regional Program Report 89-01. Prepared for Environment Canada, Environmental Protection Conservation and Protection. June 1989.

Hlady, D.A., Burger, A.E. Drift-Block Experiments to Analyze the Mortality of Oiled Seabirds. 26 pages. Prepared for B.C. Ministry of Environment, Policy and Planning Branch, Coastal Resources and Emergency Planning Section. 1990.

McPolin, Lawrence J. Evaluation of Firefighting Capability for Coastal Transportation and Storage Disasters in California Waters. California State Interagency Oil Spill Committee. April 1990.

Nalder, E. "Arco ready to refit 4 oil tankers". Seattle Times. April 25, 1990.
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Rodway, M.S. Attendance Patterns, Hatching Chronology and Breeding Population of Common Murres on Triangle Island, British Columbia Following the Nestucca Oil Spill. 46 pages. Technical Report Series No. 87. Prepared for Environment Canada, Canadian Wildlife Service, and Pacific and Yukon Region. 1990.

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S.L. Ross Environmental Research Ltd. Evaluation of Capabilities to Respond to Large Oil Spills in California Marine Waters. California State Interagency Oil Spill Committee. April 1990.

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Other. International Spill Statistics: 1986 - 1988. Oil Spill Intelligence Report. 1990.

ATTACHMENT III

Lists of Subcommittee Members

Prevention Alternatives Subcommittee

B.C. Ministry of Environment (Chair)	John Bones Bill Wolferstan
B.C. Ministry of Energy, Mines and Petroleum Resources	Lynn Ewing
B.C. Ministry of Attorney-General	Dennis Doyle
Washington Department of Ecology	Jon Neel Cullen Stephenson
Washington Attorney General's Office	Anne Essko
Alaska Environmental Conservation Department	Lynn Kent
Oregon Environmental Quality	Bruce Sutherland
California Environmental Affairs Agency.	Amy Glad

Emergency Response Subcommittee

B.C. Provincial Emergency Program (Chair)	Dean Monterey
Washington Ecology	Jim Oberlander
Washington Emergency Management	Kate Heimbach
Alaska Environmental Conservation	Lynn Kent
Oregon Environmental Quality	Bruce Sutherland
B.C. Environment	Tom Wood/ Ken Lozoway
California Environmental Affairs Agency	Amy Glad
California Department of Fish and Game	Capt. Michael Herlache

Technology Sharing Subcommittee

Washington Department of Ecology (Chair)	Jon Neel Cullen Stephenson
British Columbia Ministry of Environment	Margaret McNeill
Alaska Department of Environmental Conservation	Lynn Kent
Oregon Department of Environmental Quality	Bruce Sutherland
Washington Department of Emergency Management	Kate Heimbach
Washington Department of Wildlife	Hal Beecher
California Environmental Affairs Agency	Amy Glad

Financial Recovery Subcommittee

Washington Attorney General Office (Chair)	Ann C. Essko
B.C. Ministry of Attorney General	Dennis Doyle
California Attorney General Office	Mary Hackenbract
Oregon Attorney General Office	Michael Huston
Alaska Attorney General Office	Douglas K. Mertz
Canadian Justice Department	Alfred H.E. Popp Harry Wruck

Advisors/Study Review Panel members to the Prevention Alternatives Subcommittee:

US Coast Guard	Rene Roussel
	Steve Heath
US Environmental Protection Agency	Chuck Findley
Western States Petroleum Association	Del Fogelquist
ARCO	Fielding Formway
Puget Sound Water Quality Authority	Bill Britt
	Jerry Boese
	Paul Heimowitz
Environment Canada	Bob Sherwood
	Philip Cohen
Canadian Coast Guard	Rick Bryant
Canada West Petroleum Association	Martin Greene
Esso Marine	Cliff Barber
Trans Mountain Pipe Line Company Ltd.	Grayden Hayward

Advisors to the Financial Recovery Subcommittee:

Washington Attorney General Office	Doug Mosich
State of Washington	Mary McCrea
	Mark Bendor
United States Coast Guard	Steve Heath
Canadian Coast Guard	Shan Prihar
Washington Department of Ecology	Jon Neel